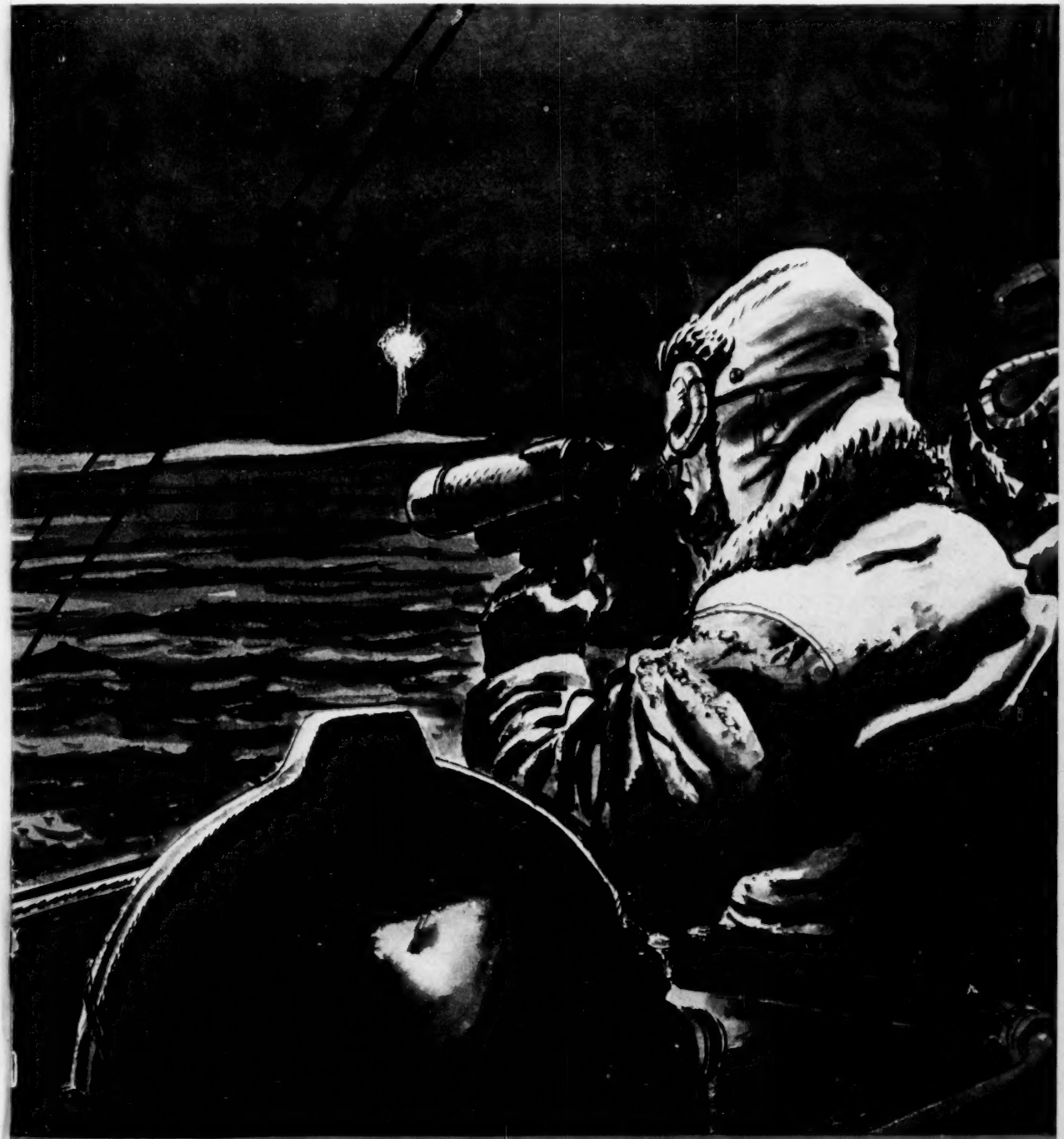
MARINE CORPS

Gazette

JULY, 1946 30c



THE MIDWAY GOES NORTH • THE TAKING OF MT TAPOTCHAU
THE CASE AGAINST THE CRITICS • AMPHIBIOUS TACTICS
MARINE AVIATION IN THE ETO • THE ATOMIC BOMB TESTS

THIS MONTH'S COVER

THE bundled figures on the cover are really a Marine officer and a Navy signalman standing watch on the *Midway* during its frosty arctic tour—see "The Midway Goes North" on page 10. Sgt John De Grasse, *Leatherneck* staff artist, did the drawing. Now 26, De Grasse joined the regular Marine Corps on 6 December 1940. Has won a hatful of scholarships and prizes, beginning with a scholarship to the Portland School of Fine Arts in his native Maine.

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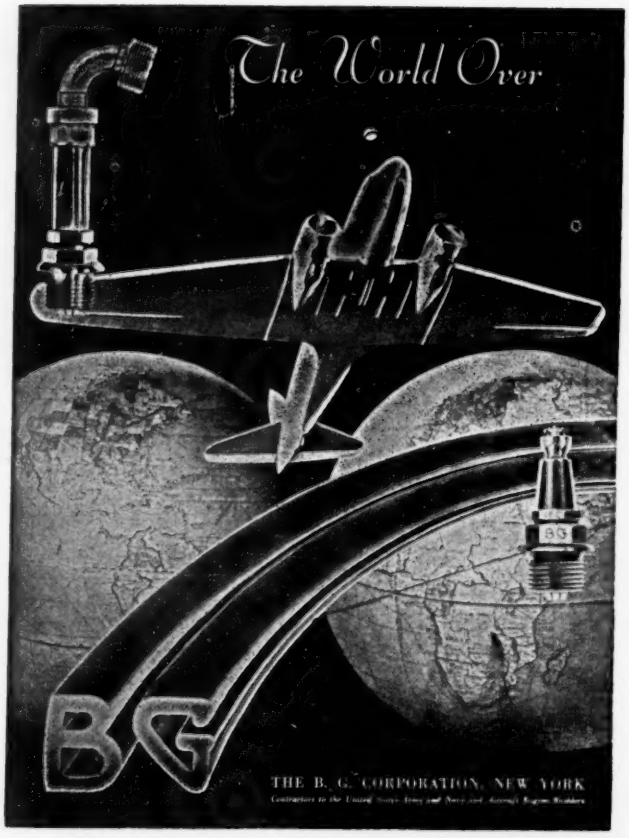

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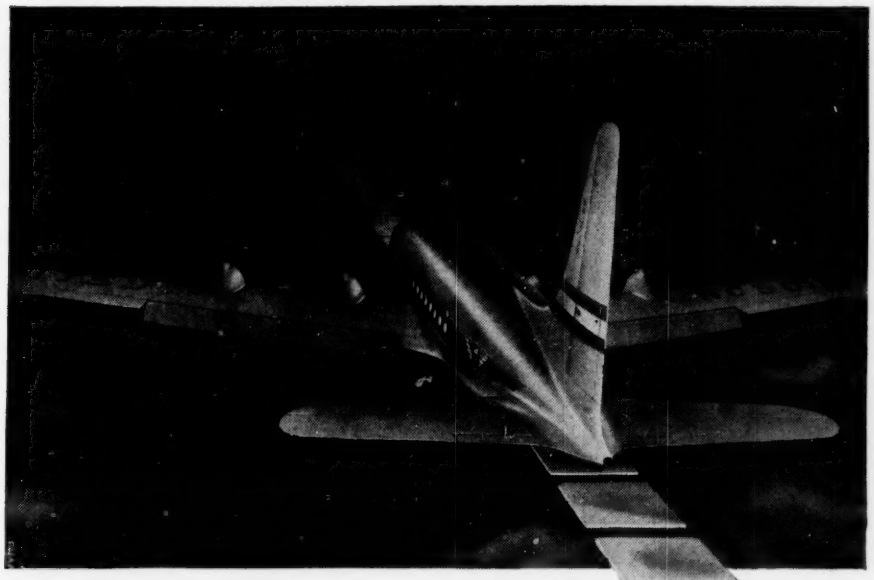

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by Col Brenton G. Wallace

A semi-official report on the operations of the Third U. S. Army, written by the ACofS G-3 (Liaison), who served with Gen Patton. An authoritative picture of a great army led by an audacious field commander.

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PASSING

BOOKS OF INTEREST

Guadalcanal to Okinawa . . .

UNCOMMON VALOR—Marine Divisions in Action—George McMillan, C. Peter Zurlinden, Alvin M. Josephy, Jr., David Dempsey, Keyes Beech, Herman Kogan. 265 pages. 13 pictorial maps, frontispiece. Washington: Infantry Journal Press. $3.00.

This account of the six Marine divisions should find a ready market among veterans of the Fleet Marine Force, Pacific, as well as with the general public for which it seems to have been written. A combat correspondent tells each division's story in 30 or 40 pages, with a map of each invaded island.

Naturally each writer is convinced his division is the best in the Marine Corps and attempts to prove it. The result is a book that shows, as Gen Vandegrift says in his foreword, "that, when it came to fighting, each was just about as good as any other." In stressing unit individuality the writers unwittingly have revealed the remarkable similarity in the combat performance of the divisions. All six were *Marine* divisions and the uniform had much more significance than the shoulder patch.

However, it was only the morale and the courage that were alike, for in their formative periods and in their overseas assignments the six divisions varied considerably. The FMF veteran will first read the story of his own outfit, of course, but the real value of the book will come in learning where and how and why the other five units were operating. For most marines, this will be their first good look at the big picture in the Pacific. The civilian reader profits from all that information, plus an introduction which discusses the Marine Corps in World War II and such incidental subjects as training and combat correspondents. There also is a chart of the organization of a Marine division (1945), a frontispiece of the six shoulder patches in color, and appendixes listing total battle casualties for each division as of 1 January 1946, the division battle stars, and the organization of the FMF, Pac. The average reader really gets his money's worth.

So does the Pacific veteran. But he also may get pretty mad in reading about the old outfit and finding mistakes relating to units and events he knows from personal experience. The authors of this book are all professional writers who saw combat, but only a part of the contents can be based on their personal observation. The rest of the material was derived from the reports of

IN REVIEW

TO MARINE READERS

other correspondents, historians, and eyewitnesses. Marines who fought on the beaches will inevitably find discrepancies—just as accident victims can find errors in news stories of the event. *Uncommon Valor* is not historical writing; it is a brief, journalistic account of six fighting units that made history.

Viewed in that light, the book reaches the objective. George McMillan of the First Marine Division has made plain the haste and hardship of Guadalcanal, the misery of Cape Gloucester, the blood and heat of Peleliu, and the "processing" of the Okinawa caves. In varying ways, the other writers depict the highlights in the careers of their divisions. Keyes Beech tells of the Fifth on Iwo mainly in terms of individuals. and includes Chaplain Gittelsohn's famed speech in the cemetery. Herman Kogan stresses the regimental point of view in tracing the gradual growth of the Sixth Marine Division. A combination of methods, both chronological and individual, is employed by C. Peter Zurlinden of the Second, Alvin Josephy, Jr. of the Third, and David Dempsey of the Fourth. They all give a colorful picture of the men, the leaders, and the campaigns that moved across the Pacific. Until a comprehensive history of the FMF is compiled, this book meets a definite need.

Careful, over-all editing would have checked many of the errors that will irritate informed readers. Such a flagrant typographical slip as omitting Iwo from the Third's honors and crediting it twice to the Fourth in the list of battle stars is hard to excuse. There also is the contradiction in the list of operations where Marine divisions participated *as such*: seven campaigns are attributed to the Sixth Marine Division. The pictorial maps could very well have more detail and some of them should be more accurate. And for a final quibble there are the dark, Robin Hood green dungarees on the Marines shown on the dust jacket by combat artist Elmer Wexler, who also did the excellent end papers.

LM

Navy Pictorial . . .

BATTLE STATIONS—Your Navy in Action—398 pages, illustrated. New York: Wm. H. Wise & Co. $3.95

Battle Stations is a thrilling camera history of World War II, compiled from the official photographs of the Navy, Marine Corps, Coast Guard, and accredited commercial photographic agencies. Authentic maps and documents are also presented.

The great sea engagements and amphibious landings are accurately depicted as well as many other associated activities. Many of these pictures have not been made public. The photography is excellent. The naval leaders of these operations have briefly explained their operations and the history of their corps. A brief biographical sketch of each of these leaders is included. A statistical table of naval losses of the U.S. Navy and all Axis powers shows where each vessel was lost and when it was lost.

You will feel a new pride in your Navy as you turn the pages of this actually startling story. Each of those who made the cruise to victory can relive those actions through the life-like photography.

MMR

Fighting General . . .

PATTON AND HIS THIRD ARMY—Col Brenton G. Wallace, USA. 232 pages, illustrated. Harrisburg: Military Service Publishing Co. $3.00.

Unlike some recent authors of World War II histories who in their haste to be timely, published books based mainly upon the notes of reporters or press dispatches, Col Wallace here presents what might well be considered a semi-official report on the operations of the Third U.S. Army.

This officer served with Gen Patton as Assistant Chief of Staff G-3 (Liaison) throughout the Army's campaigns. In this capacity, he attended Patton's daily staff meetings wherein he digested the decisions and plans for operations. It is the record of these meetings that forms the basis for the high degree of factual content of this book.

However, the style, and approach of the book are essentially for the civilian reader, not for the military student. The latter could ask for much more in the way of maps and details concerning plans, decisions, and methods that the fine Third Army staff evolved as they set the pace for the liberation of France and the conquest of Germany.

Veterans of the Pacific Theater should find this book of particular interest for the contrast displayed between the land warfare on the European continent and the amphibious war in the Pacific. Here is revealed the spectacle of mass armies moving great distances in powerful concerted drives, usually led by the smashing attacks of armored divisions.

Col Wallace depicts the "big picture" of armies and corps and rarely goes into description of action below the division level. But the reader can picture the awesome sight of whole divisions of armored and motorized infantry moving in thousands of vehicles and executing shocking drives deep into enemy territory. To

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A "how-to-do-it" book that cuts through much of the mystery of military writing. Although it was designed primarily for Army use, this hand book is equally valuable to Marine and Navy personnel who must put their thoughts into writing.

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PASSING IN REVIEW

Continued

the Pacific infantryman it is a spectacular war of maneuver.

Although Col Wallace is most loyal and admiring of his commanding general he devotes relatively little space to extolling his virtues. Enough is said, however, to reveal Gen Patton as an exceptionally capable and audacious field commander. He was a colorful leader of men in the finest tradition. History will undoubtedly record Patton as one of our best fighting generals and his Third Army as one of the most successful hard hitting, fast moving military forces of all time. **JAD Jr.**

Munitions Reference . . .

ELEMENTS OF AMMUNITION—Maj Theodore C. Ohart. 398 pages, illustrated. New York: John Wiley & Sons. $6.00.

This text, completed in October, 1945, is a most coherent, easy to read, and sensible work. It discusses in the most down-to-earth fashion possible the design, test, purpose, characteristics, and uses of all components of various types of ammunition in use by the Army and some items utilized by other forces. It contains a good discussion on aerial bombs, on pyrotechnics, and on packing of ammunition. It has a short chapter on rocket ammunition, but unfortunately no coverage of proximity fuzes, guided missiles, torpedoes, or submarine mines. However, it is valuable reference and study material for any person interested in ammunition, explosives, demolitions, or weapons. **CRB**

Put It On Paper . . .

THE ARMY WRITER—WO David Klein, USA. 223 pages, illustrated. Harrisburg: Military Service Publishing Co. $2.50.

Some brave men who have stormed pillboxes without a qualm get the shakes when confronted with a blank piece of paper. Other, normally voluble people suddenly become tongue tied when told to "put it in writing." Actually, military correspondence and writing are the simplest forms of written expression. All that is demanded is clear expression in understandable language and adherence to certain forms. The difficulties and aura of mystery surrounding military writing are pure propaganda originated by sergeants major and adjutants.

Regrettably, WO Klein's *The Army Writer* does not supply all of the answers. It is, as the title clearly states, styled for the Army. However, even though the forms differ, much of what he says is equally applicable to Navy and Marine writing. Particularly good are his sections on grammar, word choice, technical writing and research, and semiprofessional articles.

THE MARINE CORPS
THE PROFESSIONAL MAGAZINE
FOR UNITED STATES MARINES

Gazette

JULY 1946

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Among Our Authors

CAPT JAMES R. STOCKMAN taught history in a Missouri high school for five and a half years prior to enlisting in the Marine Corps in January 1942. He is now a writer with the Historical Section, HQMC. Received his commission at Green's Farm, Camp Elliott, in September 1942 and saw his first action with the 6th Marines in the closing days of the Guadalcanal operation. At Saipan he commanded the 81mm mortar platoon within the 1st Bn, 29th Marines, whose exploits he describes on page 15.

CAPT JAMES L. McCONAUGHY, JR., now heads *Time's* Ottawa Bureau, having been released from active service in February. Went on active duty as an AVS second lieutenant in April 1944. Served overseas as an intelligence officer with MAG 32 which hopped successively from Emirau to Luzon to Mindanao and finally to Tsingtao. After returning to the U. S. worked several months for *Time's* Washington bureau which included the Operation Frostbite cruise which is the basis for his article on page 10.

THE Midway GOES NORTH

"Operation Frostbite" proves that the vulnerable arctic wasteland could be defended in the event of a future war

By Capt James L. McConaughy, Jr.

WORLD WAR II proved how the U.S.'s incredible industrial capacity is her greatest military asset. But her strength is also a weakness—the next war may likely be won or lost in the first few weeks, depending on the success of surprise, saturation raids against that industrial potential. The weapons of such raids will be aircraft, rockets, and guided missles; other conditions being favorable, they can achieve their objective even without the use of atomic bombs and warheads. A thousand miles north of the U.S. begins an arctic wilderness ideal for bases and launching sites for these weapons. The problem is, simply, how to hit back at any such bases, hit back in a matter of days and hours and with overwhelming strength.

This spring the U.S. Navy discovered one answer: aircraft carriers. The month-long cruise of the *USS Midway* in the Labrador Sea, a cruise which reporters aptly labelled "Operation Frostbite," conclusively proved that the modern carrier can operate year-round in the arctic, even as far north as the circle. With their constant readiness, and with the enormous ranges and incredibly greater striking power that are being developed, carrier aircraft may be even more important than they were in 1941-45. If war comes in the arctic, their role may be far shorter than before, but it probably will be even more vital to the country's life.

By wartime standards, "Operation Frostbite" was a modest affair. Task Group 22.11 consisted of only the *Midway*, three accompanying destroyers and a tanker. The task group commander, RearAdm John H. Cassady, USN, who is also ComCarDivOne with his flag on the 147 million dollar, 60,000-ton super carrier, was told simply to take his group as far north as possible without risking men or ships, and there to find out whether a carrier can operate and what are the problems of such operations. Deliberately the Navy picked the month of March, recommended by arctologists as the worst weather month of the year. March, 1946, may have been milder than usual, but it was severe enough to be a fair test.

The instructions were broad. But the lessons from "Operation Frostbite" were specific. There are five of them:

1. Carrier operations are not only possible, they are definitely practicable in the arctic.

2. Carrier aircraft have marked advantages over land-based planes in arctic operations; temperatures over water are up to 30 and 40 degrees higher than over land, and the mobile landing field that is the flight deck can be rapidly shifted to avoid bad weather.

3. Under the most unfavorable arctic conditions, carrier efficiency is approximately 40 percent of what it is in warm waters.

4. Certain modifications, mostly minor, must be made to "arcticize" carriers; improvement in personal foul and cold weather gear are essential.

5. Arctic naval warfare will probably be conducted by small task groups of two or three carriers, with accompanying screening and supply ships; there isn't room for the huge task forces of the last war.

On the Midway's flight deck, ground crewmen warm up a Corsair's engine with an engine cover and York preheater.

ACTUALLY, the *Midway* never did touch the arctic circle; her most northern point was 63 degrees, although her planes easily could have flown the remaining 218 miles to the Land of Bluenoses. For about three weeks she cruised well north of 50 degrees, at first staying far out to sea to avoid all ice, later nosing towards the Labrador coast for both ice and lower temperatures.

For the record: she saw three icebergs, approached to within 11½ miles of one, and spent most of one day going through light, broken ice. Yet the coldest temperature of the operation was 14 above. And on only two days was flying impossible. By changing course and taking the chances necessary in wartime, she probably could have launched planes on even those two days. As it was, Adm Cassady took no unnecessary risks to prove a point already demonstrated; several days flight operations were cancelled when they were quite feasible, solely because even under ideal conditions carrier flying involves certain risks. Three planes were lost. Two pilots and three gunners were rescued with minor injuries; the third pilot apparently was knocked unconscious in ditching and failed to get out of the cockpit of his SB2C before it sank. All three ditchings occurred while enroute to the operating area, in waters generally of the latitude of Boston.

The tremendous difference in air temperatures over water and land was dramatically demonstrated while the *Midway* was not far off Hudson Strait and the temperature on the flight deck was 22 above. From the nearest land station, some 400 miles away, came the report, 40 below—62 degrees colder! This contrast was extreme, but it illustrates a prime point about arctic waters, that the air over them is inevitably far warmer than over land. The explanation is simple physics. Open water is always 28 degrees or more, usually about 30 to 35 degrees, and as chilled air from the land blows across this warmer open water it is heated. The further the wind blows, the more heat it absorbs, and big ships generally cruise far out to sea to avoid any chance of floating ice. Mostly the *Midway's* temperatures were in the 20s.

Nor were snow and ice a real problem. The Midway carried stable brooms, two power brushes and two snowplows. The heaviest fall was only an inch and a half, and it was quickly brushed overboard by sweepers. Mixing nozzles (live steam and sea water mixed to 140 degrees) and wooden mallets were ready to attack ice, but the flight deck had none of any proportion. The ship simply changed course whenever potential icing conditions were encountered.

The big question of carriers in the arctic is whether aircraft can be left on the flight deck, exposed for many hours to high, icy winds, and

On the bridge of the Midway is RearAdm John H. Cassady, task group commander.

then be launched directly. While the ship was off northeastern Labrador, one day's flight plan called for 25 SB2Cs and F4Us from Air Group 75. Of the 25, two failed to start at all, four others started so laboriously their plugs were fouled, and two more were scratched when their wing-folding gear iced up. Air Group Commander, Comdr Thomas Blackburn, USN, watched with disgust as the eight cripples fouled up the launching schedule, and with complete understatement indicated the wartime consequences of such delays: "I'm sure glad we're not mad at anybody right now."

Attempting solutions of the problem included using engine covers, wing covers, and auxiliary power units, and warming up engines frequently. None of them solved it. Engine covers were successful, but ten men were needed to handle each one in the high wind across the flight deck. Wing covers tore and became unmanageable, and they failed to prevent frost from forming underneath. Further, no covers were available to protect vital tail surfaces or to prevent frost from forming on various other controls. APUs were successful, and probably the "arcticized" carrier will have its flight (and hangar) deck dotted with 24-volt outlets.

HALFWAY through the cruise, the roller curtain door on the hangar deck, alongside No. 2 elevator, jammed. Subsequently it gave way under moderate seas, and braces were welded to strengthen it. These repairs, however, made it impossible to use the deck-edge elevator. With it out, it was not feasible to try what some naval aviators on board believed to be the key to efficient arctic operations; namely, hangar-deck-load launchings. Planes will be serviced and warmed up on the hangar deck, be manned there by pilots and brought up individually and directly to the catapault where they will be launched a moment or two later.

Several senior officers thought that in order for a carrier to operate anywhere and anytime in the arctic, at best only a dozen planes should be carried topside. They would be spares and expendable, ready to be bulldozed overboard at any emergency. Others, however, believed that as fast as planes are taken up from the hangar deck and launched, planes previously parked aft on the flight deck can be taken below, serviced and warmed up. They argued that despite long exposure in cold, winds, and mild icing condi-

Capt H. S. Duckworth was the skipper of the Midway during its northern cruise.

tions, planes could be made ready for flight in two or three hours. In otherwords, 100 percent efficiency can be achieved in arctic operations by using two waves, separated by two or three hours, or the length of time necessary to get planes that have been parked on the flight deck back in condition for immediate launching.

Which theory is correct will have to wait for another March-weather test, next year.

DESPITE a largely green crew, personnel performance was extraordinarily high. But the cruise showed that at best personnel efficiency is only some 80 percent of what it is in warm or temperate climates. After two weeks, individual allowances for enlisted men's mess were increased 20 percent, from 60 to 72 cents per day. After four mornings of 0545 GQs, sick call attendance jumped 40 percent. Though doctors were not alarmed and health conditions remained high, this epitomized the drop in human efficiency in cold weather.

One senior officer believed that the automatic combat-zone GQs may have to be modified in any arctic problem, that far more watches will have to be dogged. As he said, "The men can't do all that and fight, too. In the arctic, the body's available surplus energy is definitely less than where it's warm. And we might as well realize that we must use that reduced energy where it is most needed."

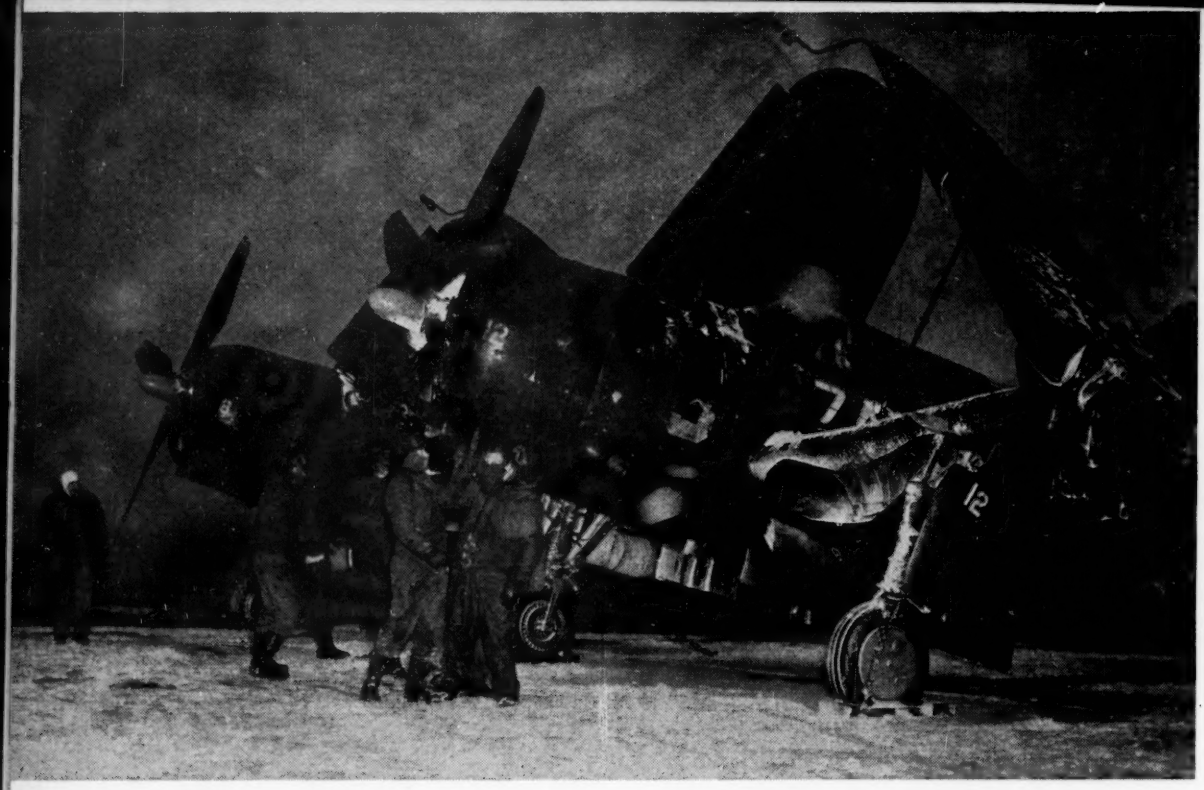
Foul weather gear was generally unsatisfactory, though some experimental types were encouraging. A modification of the Mark II exposure suit, with tighter neck and wrist seals and made of tougher material not so easily torn, stood up well; pilots' reports were favorable. Clothing for non-flying personnel was too bulky. Working among turning props, crawling on all fours in heavy prop washes, plane crews must have clothing that is warm yet allows real freedom of movement. The present clothing does not. The greatest problem is gloves. Flight deck personnel use their fingers constantly, they must be ready to grab a barrier or arresting cable, a finger hole for a tie-down, at a split-second's notice. Frequently their personal safety depends on quick, sure grabs. The present issue gloves are warm enough but do not permit this essential dexterity.

Moreover, flight deck personnel must be able to change into warm, dry clothes in a hurry. Standing around the flight or hangar decks in wet clothing is a certain invitation to pneumonia. Yet these hands must be instantly on call if planes are to be launched and taken on board with anything like warm-water speed. As designed, the *Midway* and other carriers do not have adequate facilities for drying and storing clothing. Probably some of the gallery deck space now occupied by officers' staterooms must be converted into rooms for these purposes.

Signal officers, wearing the latest in cold weather gear, bring in a plane.

Radar picked up large masses of ice accurately. But small fields, with no pronounced elevations, were not detected by either radar or underwater devices. Only by staying far out to sea—the ice fields extend 100 miles off Labrador, 60 miles oft western Greenland—can a ship be reasonably sure of avoiding ice. Even so, there are occasional growlers of 50 to 100 tons that can send a destroyer down in minutes and can seriously cripple even an armored ship. This hazard makes it a severe gamble to risk in the same force as many ships as usually operate together in warm waters.

But not all the changed conditions of arctic operations are problems. Water is no headache here; personal baths for the crew are one half or less of tropic needs. And because of the colder temperature of sea water used in the condensers, the ship's engines gained new efficiency, the engineering department discovering it was getting an extra knot of speed. In other words, the same amount of fuel that drove the *Midway* 19 knots off Cuba, off Labrador drove her 20 knots.



A late-model Corsair is checked before its launching from snow-covered flight deck.

DO the positive results of "Operation Frostbite" mean that land-based planes are secondary in such a problem as italicized in the beginning of this article? Absolutely not. They will inevitably bear a major share of any future defense of the U. S. But two roles immediately suggest themselves for carrier aircraft: reconnaissance and striking back within the first few days before land-based operations can become full force; and providing fighter escort for long-range, land-based planes.

By no means the final word, but a significant interim report on the Navy's plans for carriers in the arctic was delivered by Adm Cassady on board his flagship even before "Operation Frostbite" was concluded. He said:

" . . . We have proved that carriers can operate under conditions where land-based aircraft cannot operate. . . With the speed of a fast carrier group, you can shift your positions 300 to 400 miles in 24 hours. If you've got good weather information, you can pick your weather.

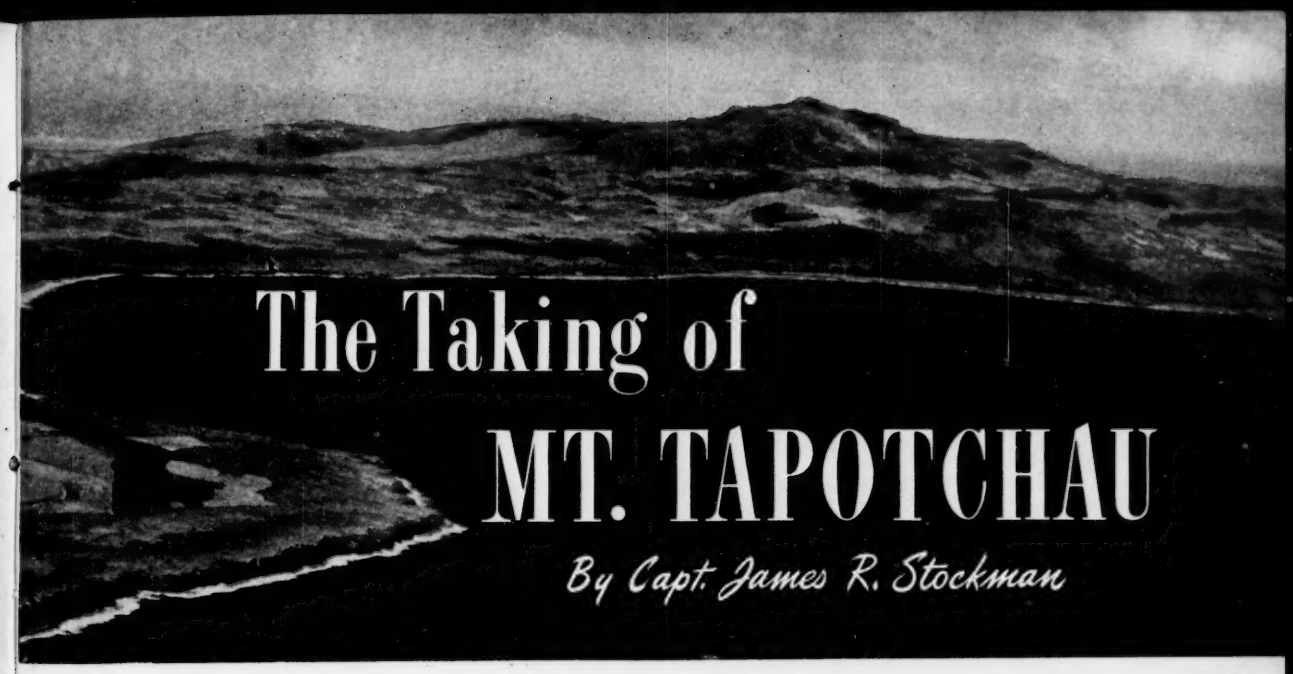
" . . . Our answer to (any) surprise raid must be our instant readiness—and I repeat, *instant* readiness—to strike back in greater strength than we were attacked. If we do, we won't be attacked. If we don't we will be . . . obliterated. . .

"With a strong long-range bomber program plus a strong carrier aircraft program, we can be in such a position of instant readiness that any nation will consider it suicide to attack us.

"It is the intention of the Navy to operate relatively effectively—not equally, but relatively effectively—in unfavorable weather conditions."

To prove the firmness of this intention, especially as it applied to the problems of defense in the far north, the Navy is already planning further arctic cruises next winter and spring. No official announcements have been made, but it is no secret that those cruises include probably battleships, certainly several carriers of both the *Midway* and *Essex* classes. And they will be in both oceans, off Alaska in the Pacific, off both coasts of Greenland in the Atlantic. END

SIMULTANEOUSLY with "Operation Frostbite," "Exercise Musk-Ox" was carried out by a small group of Canadian Army technicians, accompanied by five American and one British observers. Purpose of their 81-day, 3,130-mile, non-tactical jaunt was to test latest developments in cold weather equipment, clothing, and rations. Speed averaged 9.6 miles per hour, 50 miles a day, with seven stops en route.



The Taking of MT. TAPOTCHAU

By Capt. James R. Stockman

ON 25 JUNE 1944 the key terrain feature on the island of Saipan—Mt. Tapotchau—fell to the 1st Bn, 29th Marines after one of the most unorthodox attacks staged during the entire operation. On that day the battalion commander, LtCol Rathvon M. Tompkins, did these things:

1. Used his battalion reserve (one platoon of scouts from Division Reconnaissance Co) to seize an objective from the flank, when enemy troops barred the forward progress of his three rifle companies.

2. Disengaged two front line companies from contact with the enemy and moved them in a column of files around the right flank to occupy the ground on top of the mountain now held by the battalion reserve.

3. Left one company, engaged with the enemy, to hold a ridge adjacent to the mountain until next day.

4. Openly advertised his intention of occupying the mountain top by calling for mixed smoke and high explosive fire from the 81mm mortar platoon to form a curtain, behind which the companies could ascend the mountain and get into position.

5. Executed the disengagement of the two companies between 1400 and 1700 and began the ascent of the mountain with a battalion, less one company, at 1900—a period usually considered as being too late in the day to stage an attack.

6. Suffered no casualties on the climb up the mountain until the enemy counterattacked—unsuccessfully—after the companies had dug in.

Three requisites are necessary to the bold execution of such an undertaking: the battalion commander must have imagination; he must be willing to gamble; he must know the enemy and the terrain over which the action is to take place. Of these three, the latter is the most important; it will determine the odds in the gamble. LtCol Tompkins had all of these requisites and more.

Ten days on Saipan, beginning with D-day, had taken their toll of men in the battalion. The rifle companies had the following effectives: A Co, 2 officers, 71 enlisted; B Co, 4 officers, 109 enlisted; C Co, 1 officer, 83 enlisted. Even battalion headquarters had suffered losses and only the 81mm mortar platoon remained virtually unscathed. With its frontage unchanged and its strength depleted, the battalion had reached the place, a few days earlier, where it was necessary to commit all three rifle companies into the line. The 8th Marines, to which the 1st Bn, 29th Marines, was attached, was aware of this situation and had asked the 2d Marine Division for a platoon of scouts, to be given to LtCol Tompkins as a reserve for his battalion.

Early on the morning of 25 June all three companies resumed their attack toward Mt. Tapotchau. On the left was Baker Co (Specht) working on a spur southwest of the mountain. This spur was in the shape of a high ridge whose long axis ran almost parallel to the western part of Mt. Tapotchau. Named for a platoon sergeant of Baker Co whose platoon had gained a foothold on its south end on 24 June, the

Saipan's key terrain feature was seized by a brilliant if unorthodox maneuver

spur was called Hardee's Mountain. Between it and Tapotchau lay a small plateau densely covered with mixed cane, grass, small trees, and shrubs.

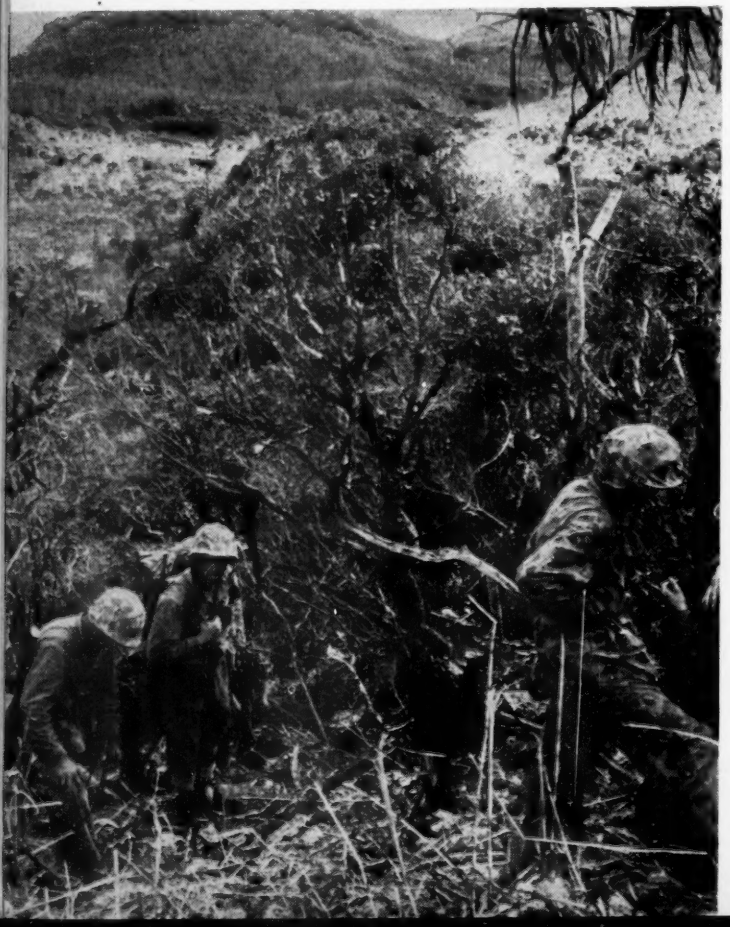
To the right of Baker Co was Able Co (Reid), whose direction of attack was almost due north over ground covered by heavy vegetation and foliage, out of which rose the south slope of Mt. Tapotchau—steep and barren. Farther to the right was Charlie Co (Musick), covering the battalion's right flank, and attacking toward the eastern half of the mountain. On the right of Charlie, and far to the rear, was the left element of the 27th Infantry Division. The 2d Bn, 8th Marines, which had been in regimental reserve, moved in to fill this gap and to protect the right flank of the 1st Bn, 29th Marines.

All day long B Co made repeated efforts to cross the intervening ground between Hardee's Mountain and Mt. Tapotchau but Japanese snipers and machine guns stopped the company. In the first attempt the company came close to being ambushed and was forced to withdraw with light casualties.

Supporting the company was a section of two 81mm mortars. A mortar observer was up forward with the company. After the first attempt at crossing had failed, the company commander requested this observer to blanket the little valley with fire. One hundred and five rounds of HE light were thrown into the designated area. Excellent fragmentation resulted from tree bursts; the fire was called in to within twenty-five yards of the company's front lines. While preparing to attack again during the early afternoon, Specht (B Co) was notified via radio by LtCol Tompkins to hold his position on the hill for the night and to set up a perimeter defense.

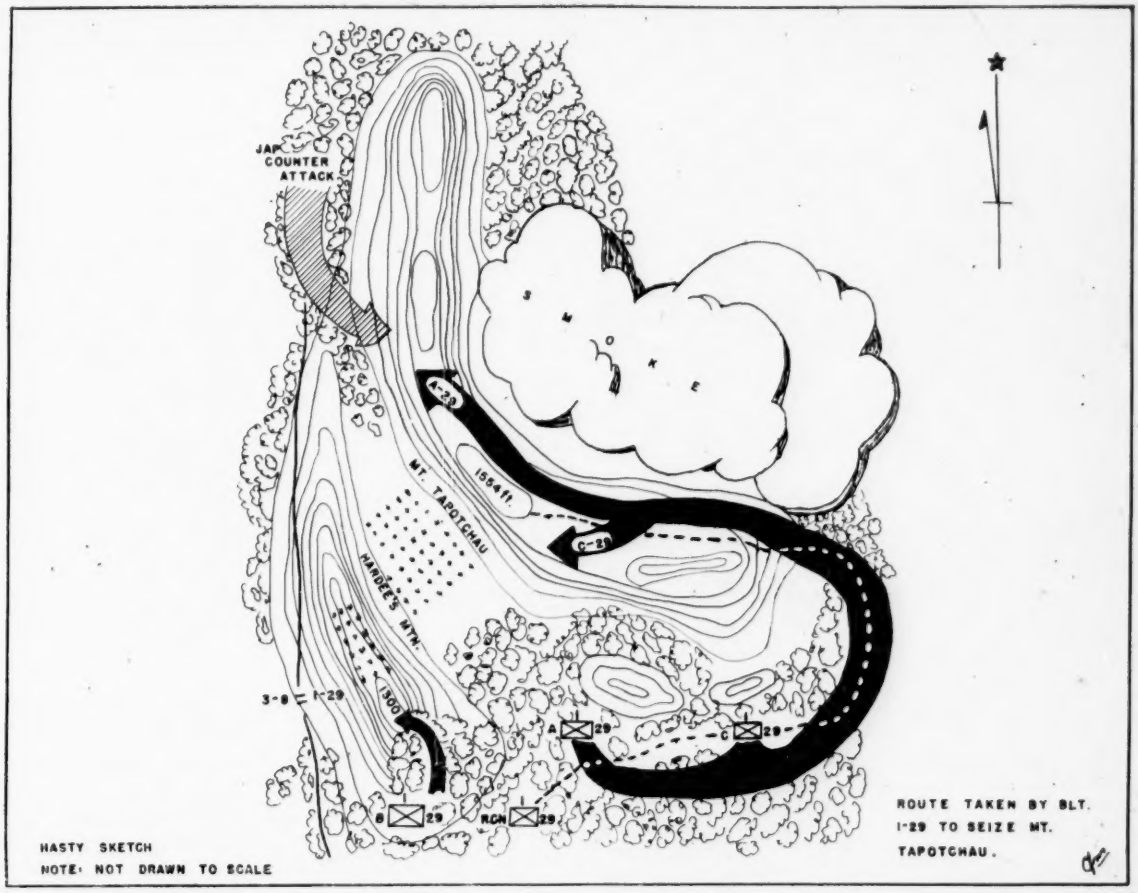
The foregoing order resulted from a situation that had developed over on the battalion's right flank. At 1000 that morning, word was received that friendly troops had a foothold on the eastern edge of Mt. Tapotchau. Tompkins left his OP and went over to the right flank, picking up his battalion reserve, the division scouts, on the way. He found one platoon from Easy Co, 8th Marines and one platoon from his own Charlie Co clinging to positions on the easternmost edge of the mountain. Due to heavy automatic fire from the Japs below the ridge line on the south slope, the two platoons were pinned down. Easy Co had emplaced its 60mm mortars on a little flat just below the edge of the mountain and these guns were searching and traversing for the enemy positions.

2nd Division marines clamber up the scraggly face of a hill during the heavy fighting for Jap-held Tapotchau.



At this time LtCol Tompkins decided to take the top of the mountain. In order to observe personally the situation and terrain he turned over command of the battalion to the executive officer and explained his plan to Lts Drake and Roubichaux of the Division Scout platoon. His decision was to commit the battalion reserve—the scouts—working them to the top of the mountain to hold that important spot until the rest of the battalion could be brought up.

The three officers and twenty-five enlisted men moved out in single file, crawled up the rock face of the eastern edge of the mountain, dropped over to the north, Jap-held side of the ridge line and headed for the summit. Without meeting any enemy action, the platoon reached the junction of the north and south spurs and there, at the highest point on Saipan—1554 feet above sea level—they found a large cave hewed in the rock. This cave or dugout was roughly twelve feet square and a man could stand erect in it. It was later to be used as a combined forward command post and aid station. Lt Drake quickly set outposts and within five minutes a Jap was killed. Drake was told to maintain his present position and the



rest of the battalion would be brought in. The problem was now to disengage 1/29, move it to the right flank and then bring it to the top of Mt. Tapotchau.

Retracing his steps, Tompkins and his runner returned to the east base of the mountain and resumed command of the battalion. It was now about 1400 hours and on checking with the companies via radio, the situation was found to be as follows: Baker Co, on the left flank, was on the spur (Hardee's) south of Mt. Tapotchau and heavily engaged by the Japs; Able Co in the center, was pinned down in the woods near the south base of Mt. Tapotchau and apparently was unable to move. Charlie Co, on the right flank, had run into some enemy-defended caves and was barely moving.

It was decided that B Co should retain its position on Hardee's spur while A and C Cos occupied Mt. Tapotchau. Accordingly, the battalion executive, Maj Vasconcellos, was sent to extricate A Co and bring it to the valley below the east wall of the mountain.

Eventually, the opposition having been neutralized, the forward CP group and Charlie Co were essembled in column of files. They marched along the dirt road that ran through the woods near the south base of Tapotchau to a supply dump that was being established by regiment near the east wall and on the right flank of the battalion's zone of action.

Here every officer and man loaded himself with extra water, ammunition, wire, or rations. As the troops moved out, a runner was left at the dump to instruct Able Co to do the same as it passed the dump. With Tompkins at its head, the column proceeded to the foot of the eastern cliff of Mt. Tapotchau. Here there was disquieting news waiting; the troops that had previously been clinging to the top of the rock wall, unable to make any progress, had taken up positions below the wall and in the edge of the woods. This meant that, other than the scouts at the summit—if they were still alive—there were no marines on the mountain. Observers in the valley south of the mountain reported that at 1700 hours two red smoke grenades had been fired in the vicinity of the rock dugout previously mentioned; whether they were fired by the scouts or by Japs who had overrun the position there was no way of telling. (It is obvious now that a radio should somehow have been procured for the use of the platoon at the summit; the phone line that was to have been laid never materialized).

Pondering the situation, Tompkins received

word, passed up the line of men, that A Co had passed the dump and was waiting just behind. The time now was 1830 and daylight was fading fast.

In planning this movement, Tompkins had notified his 81mm mortar platoon to have all it. white phosphorous and fragmentation ammunition ready, and to be prepared to lay a curtain of smoke and fire on the plateau north of the L-shaped crest of Tapotchau to screen the movement of troops. The mortar officer was en route from his guns to an OP with Baker Co and did not learn of the plan until shortly before it was executed. However, the platoon had gathered all available ammunition and stood ready to fire at a moment's notice. The artillery FO wa notified to lay his guns farther north to cover the north edge of the plateau while the 81s took care of the close-in work.

During the day, the 81mm mortar platoon had been supporting Baker Co with one section of guns and had the other section ready to support Charlie. It had been the mortar officer's intention to move his guns forward next day when suitable firing positions were found; the guns were 1400 yards to the rear. From their positions, the guns were able to clear the crest of Mt. Tapotchau with white phosphorous round of ammunition, by firing at their extreme range. With a sight setting of 1400 yards, one section had placed fire on Tapotchau's south face. At maximum range, 2400 yards for heavy ammunition, the bursts were landing about two to four hundred yards over the crest and on the plateau! A slight depressing of the tubes and fire would hit the crest.

The set-up by which this all-important mortar fire was controlled was one that would have delighted Rube Goldberg. Upon learning of Tompkins' plan fifteen minutes before it went into effect, the mortar officer and his observer team found themselves in the unenviable position of being with Baker Co and unable to observe fire, while they supported the movement of the rest of the battalion. A quick communication hook-up was thrown together. The operations officer, Maj William W. McKinley, was with Tompkins and in a position where he could observe the mortar rounds as they fell on the plateau. He had an SCR 300 radio and could communicate with the 81mm mortar officer who was using Baker Company's radio. From B Co, the mortar observer team had combat wire strung back to the gun battery. With McKinley observing, the observer team rapidly computed and relayed changes to the guns; the guns were quickly registered.

About ten minutes before 1900, the mortars began to lay a curtain of mixed fire and smoke to cover the advance of Tompkins and the two companies. The smoke concealed the troop movement and the high explosive shells prevented the Japs from penetrating the smoke to see what was going on. Fortunately there was

After the battle members of the 81mm mortar platoon pose with captured Jap flag.

LtCol Rathvon M. Tompkins, wounded later in the Saipan operation, awaits evacuation.

no wind; the smoke formed a writhing sea of white, lapping halfway up the sides of the crest of Tapotchau. Out past the smoke, the artillery was dropping high explosive and more smoke to keep the enemy down.

At exactly 1900, Tompkins moved out with the two companies following him in a single file. The smoke blanket held and just as darkness became complete, the head of the column reached the summit and contacted Drake and his division scouts. The day had not been uneventful for these men. They had killed approximately 40 Japs at a cost of one man killed and three wounded.

In complete darkness Charlie Co peeled off into position first on the spur that ran east from the summit. Able moved on up to take positions along the north spur on the other side of the summit. It was difficult for the men to dig their foxholes; the mountain top was almost solid rock or coral, only occasionally was there a spot of dirt. Many of the foxholes had to be improvised above ground by piling up stones. The two spurs were very narrow in width and the men found the going hard when they gathered up supplies and ammunitioin and moved them to central locations. Machine guns were posted and the 60mm mortars set up. Tompkins and his forward command post group occupied the summit with Drake's platoon.

At this time, Tompkins learned that his executive officer, Maj Vasconcellos, had been wounded and evacuated during the afternoon. While disengaging A Co, he had been caught by a burst of Jap machine gun fire and his leg was smashed.

So far, the scheme had worked faultlessly. Not a man had been wounded or killed in occupying the mountain top. The silence that had hung over the crest like a blanket was soon to be broken. By 2230 both Able and Charlie Cos were dug in. Drake's platoon was deployed to furnish protection for the forward command post. Forty-five minutes later the Japs counter-attacked and hit Able Co from the west side of the north spur. Here vegetation and foliage were dense, and a few of the enemy almost reached the foxholes of Able Co. Most of them threw grenades, a few had rifles and others were armed with "idiot-sticks" (wooden practice rifles with bayonets tied to the end). Their yelling and screaming was heard by the men of Baker Co over on Hardee's Mountain and that company prepared to repel a similar enemy counter-attack.

A Co held its positions and beat off the enemy with only light casualties. The size of the enemy force could not be guessed; eighteen Japanese bodies were found scattered on the side of the spur next morning. For the rest of the night Able Co's sector was quiet.

Around midnight, Baker Co heard suspicious movements in the little valley between its positions and Tapotchau. The 81mm mortar officer who was with the company, was requested by Capt Lyle E. Specht, B Co commander, to lay fragmentation mortar fire in the valley where the noises seemed to originate. One section of guns had been kept laid on this very area to prevent any breakthrough by the Japs between Baker Co and the rest of the battalion. Within a few seconds the fire was delivered and was continued, two rounds every fifteen minutes, for the rest of the night. It has never been determined whether the noises were made by any sizable group or if it were just one individual. At any rate, there was no breakthrough.

With the coming of dawn, the companies on Mt. Tapotchau developed further their positions. During the morning, Specht took his company across the valley and joined the rest of the battalion on the mountain. The 3d Bn, 8th Marines, commanded by LtCol S. E. Larsen, tied in on the left of the 1st Bn, 29th Marines, and on the right, B Co extended to contact Maj William C. Chamberlin's 2d Bn, 8th Marines Mt. Tapotchau was now held firmly and the Japanese were deprived of the best vantage point on the island. From here on, we could look down the throats of the enemy; until now, he had been able to observe our every move.

LtCol Tompkins' gamble paid dividends. With a minimum of effort he now held the key terrain feature on the island; in seizing it, he had not lost a single man killed or wounded. Casualties suffered in the counterattack should not be confused with the seizure of the mountain. They were received in the defense of it.

In summary, one can hardly help thinking of what might have happened had the plan been less well-conceived or carried out. Without the approval of the regimental commander of the 8th Marines, Col Clarence R. Wallace, Tompkins undoubtedly would not have essayed such an undertaking. Had Drake and his platoon been driven off the summit, it is doubtful whether Tompkins could have taken it against enemy opposition at such a late hour. It is also doubtful whether Baker Co could have prevented a Japanese breakthrough in the event that the plan to occupy the mountain failed. The fact remains, however, that despite all the *ifs* or *whethers*, the bold plan worked. LtCol Tompkins' ingenious maneuver had won Mt. Tapotchau for the 2d Marine Division. END

How Well Do You Remember The Japanese Army?

See how many correct answers you get on these True-False questions.

1. The color of the Japanese uniform is blue-green.
2. There were three rifle companies in a Japanese battalion.
3. Usually a first lieutenant commanded a company.
4. The Japanese battalion gun platoon included two 70mm guns.
5. The Japanese battalion in defense extends and thins its front line to enable the reserve company to execute a flanking attack.
6. Ruses and feints were characteristic of Japanese tactics.
7. Eighty yards is the effective range of the Japanese flame thrower.
8. The most efficient burst of flame from a Japanese flame thrower is from six to seven seconds.
9. The average thickness of armor on a Japanese tank is three-fourths of an inch.
10. The Japanese used extensive barbed wire around all positions.
11. The Japanese cut wide, clear, fields of fire.
12. Japanese soldiers learned various jobs in their units and were not specialized.
13. Japanese medium and heavy machine guns are recoil-operated and water-cooled.
14. The knee mortar is a 60mm mortar weighing fifteen pounds and is fired by a crew of two.
15. Most Japanese machine guns are belt fed.
16. The knee mortar fires four different types of shells.
17. The Japanese rifle is a trifle shorter than ours.
18. The Nambu light machine guns weigh nineteen pounds and have a bayonet stud.
19. The Zero was used as a carrier based aircraft.
20. "Banzai" is the Japanese word for surrender.

Answers on page 51

Marine Aviation Observers in Africa and Europe

Even before the United States entered the war, Marine air observers eyed the Luftwaffe and RAF for ideas and tactics

By Capt John A. De Chant

BRIGGEN Lewie G. Merritt was the first Marine pilot to be shot down in World War II by the Germans. He also holds the distinction of being the only one knocked down by the Nazis, but he was not the only U.S. marine who might have been. For it was typical of the Marine Air Arm to have its many observers roaming the globe in search of new ideas and new tactics, long before this country even considered taking sides in what was then "someone else's war."

The Marine observers of naval aviation have much in common with the scouts of the nation's football and baseball teams. For no matter how well the home team plays, it stands a much better chance of winning each session if it knows beforehand the timbre, tricks, and techniques of its opponents. But there are two things that war observers and sport scouts don't have in common. The observers don't get and don't want publicity on their roamings and front line research. And theirs is a deadly business in which no one blows the "time-out" whistle.

Gen Merritt's episode happened on 7 January 1942 while he was serving out of Cairo with the Royal Air Force. The famed British Eighth Army under Gen Ritchie was striking at Rommel's positions and Gen Merritt took off as an observer in a Wellington bomber on a reconnaissance mission over Hill 207 near the Halfaya Pass, last Axis stronghold in the Bardia region.

While cruising about three miles south of Bardia, the Wellington was hit abaft the bomb bay by Nazi 88mm flak, and later by machine gun fire. The exploding shell ruptured the hydraulic lines and severed the control wires, forcing the plane to land within sight of the German battery which winged it. After the crash, the 88mm battery laid down a heavy barrage which pinned Gen Merritt and the plane crew to the sand until two British armored cars broke through and rescued them. Though his right side was smashed, Gen Merritt was soon released from the field dressing station to continue his study of operations in the Fighter Command Centers of the RAF.

Little known to the public, or even to the Corps itself, were the activities of BrigGen Harold D. Campbell while attached to the British Staff of Combined Operations. He was awarded a Legion of Merit for services under Lord Louis Mountbatten as the Naval and Marine aviation expert in the planning and execution of the famed Dieppe raid when the Allies in Europe were testing the tactics of large-scale amphibious operations.

While Marine airmen had served in many foreign countries as naval attaches during the decades of nominal peace and in the early months of World War II, their increased travels into the African and European theaters of war began in early 1941.

In April of that year, BrigGen Ross E. Rowell, senior Marine aviator, was ordered to London as assistant Naval Attache and Naval Air Attache for duty in Cairo, Egypt.

Based on observations in the desert war and on the Western Front in Europe, Gen Rowell made many recommendations to improve Marine Aviation. Perhaps the most far-reaching of these, made in November, 1941, was for a medium-size, long-range, high-speed bomber to be used at night in harassing missions against distant enemy targets. Out of such recommendations and the rigorous combat experiments of Maj Jack R. Cram in the Pacific, grew the Marine PBJ night bomber program which, from January 1944, on, heckled Jap positions and harried the enemy's night shipping efforts throughout the Pacific.

Through the medium of attachment to British Empire forces, Marine pilots gained a first-hand view of Axis activities wherever the Allies engaged them. They profited from the opportunity of witnessing the battle operations of both our Allies and enemies-to-be.

Aside from the broad field of military experience and training which the marines gained in those theaters and later used in the Pacific, there was the possibility in 1941 and early 1942 that the Marine Corps and its air arm might be called upon to join in the European conflict as well as in the Japanese war.

BrigGen Walter G. Farrell and Col Perry O. Parmelee saw the costly impotency of land and

BrigGen Lewie G. Merritt was the only Marine aviator to be shot down by the Germans in the North African campaign.

BrigGen Harold D. Campbell was the Naval and Marine aviation expert in planning the famed raid on Dieppe.

sea forces in the face of superior air power while on duty with the British Eastern Mediterranean Fleet in the spring of 1941. Serving with the English carrier and battleship forces, they watched the Allies' almost futile effort to stem the flow of supplies and troops which poured into North Africa across the Sicilian straits under an umbrella of shore-based Italian and German planes.

In May, 1941, after the *Wehrmacht* had swept to the shores of the Mediterranean, came the *Luftwaffe* field day. In the debacle at Crete, Nazi air superiority knocked out three-quarters of the participating British fleet and enabled a shuttle-relay of enemy transports to spill parachutists on the Meleme airdrome and reinforce them at will with airborne infantry.

These graphic examples of overwhelming air support forcefully convinced Farrell and Parmalee, among others, of the vital need to any air organization of a fighter plane force readily strong enough to immobilize the enemy's air efforts. Such recommendations contributed much to the four-to-one ratio of fighters to bombers which our forces strove to maintain both ashore and afloat in the Pacific war.

Singapore was the first destination of MajGen Claude A. Larkin and Col Frank G. Dailey when they left San Francisco in May, 1941. From the then mighty British fleet anchorage, they traveled via Malaya, Thailand, Burma, India and Arabia to Iraq. They arrived at Basra simultaneously with the end of the Iraqui revolt and later spent some time with the RAF and the Australian ground forces in the Syrian campaign, undergoing bombings in Haifa and Alexandria.

Famed on Gaudalcanal for his work in photo reconnaissance and intelligence was Maj Michael Sampas who had gained extensive combat experience in those fields while serving as a naval observer in Europe and Africa. Then a first lieutenant, Sampas' report urged that photo recon squadrons be organized for each Marine air wing and that they be equipped with the finest available fighter planes. Noteworthy among his other recommendations was the one which pointed out the advisability of organizing and training photo interpretation and intelligence sections as a part of Marine Aviation to interpret, evaluate and disseminate intelligence data.

There is a long list of Marine airmen who traveled to Europe and Africa as observers both before and after we entered the war. Notable among these whose experience in thoses theaters contributed greatly to the almost incredible development of the air arm in the war years were: LtGen Roy S. Geiger, MajGens Field Harris and Francis P. Mulcahy, BrigGens William L. McKittrick and C. F. Schilt and Cols William G. Manley and John Wehle.

Resulting from the combat experience and knowledge gained by them and a score of others was a unanimity of conviction on a number of vital subjects: that a high ratio of fighters to bombers was required for successful bombing missions; that aerial reconnaissance and photo-

BrigGen Ross E. Rowell saw the need of a fast, medium, long-range night bomber to harass enemy positions.

BrigGen Walter G. Farrell was convinced that air units must have enough fighter planes to immobilize enemy air efforts.

graphic work be intensified; that non-flying personnel be assigned in quantity to all air units from squadrons to wings for administrative, intelligence, and other allied staff functions. They emphasized the need for proper revetments and dispersal areas and proposed a healthy increase in motor and air transport for field units. Long before the T/Os had much room for airdrome defense, they recognized the fundamental need for such units and urged that immediate and adequate provisions be made for them.

Perhaps the most vital single contribution made by Marine airmen in Europe to the later successes of the air arm in combat was in the field of night fighting.

The first night fighter squadron in naval aviation to engage the Japanese in combat was a Marine unit—VMF (N) 531—commanded by Col Frank H. Schwable. Both Schwable and Col Edward C. Dyer studied night-fighting in England. During a global tour observing the enemy's air tactics, they saw Wavell's retreat from Greece and studied British techniques in intercept control and radar at the Fighter Director School at Stanmore, England.

Based on his RAF observations, Col Dyer recommended before our entry into the war that Marine air wings and defense groups be equipped with night fighter units in addition to the heavy day fighter complement as the only adequate answer to the enemy's marauding night bombers. Subsequent experiments in the Pacific bore out Col Dyer's contention.

Col Schwable's intensive study at Stanmore proved of great practical value when he commanded VMF (N) 531 in the latter Solomons campaigns with a personal record of four kills and 85 combat missions. This squadron's experience and success in night intercepts and the use of the ground control station did much to sell field commanders on the value of regular night cover and to develop the highly successful Marine night fighter program.

As the Japs turned to constant use of night cover for their nuisance raids, Marine air generals in the field urgently requested trained night fighter units to cope with the problem.

In answer, the program then in progress expanded and a contingent of aviation officers and men were sent to Stanmore, England early in 1943 to study the latest phases of night fighter radar technique. Each of the officers and men were assigned specific phases of the British system to study in order to bring back a complete and integrated program.

The British were far advanced in the night intercept system. Their experience dated back to World War I when the German Gothas and Zepplins raided England. The radar net which the RAF used to win the air Battle of Britain in 1940 was their groundwork for a more complicated system they developed when the *Luftwaffe* turned to heavy night raids.

Many of the Marines flew the Beaufighter which the British were then using and participated in night combat patrols against the Nazi air force, though they scored no kills.

Col Edward C. Dyer recommended that Marine air wings and defense groups be equipped with night fighter units.

Col Frank H. Schwable studied British methods of intercept control and radar at England's Fighter Director School.

Included in this night fighter contingent were many who played predominant roles in Marine night fighter operations in the Pacific—Col Edward A. Montgomery, LtCols Guy M. Morrow, Marrion M. Magruder, and Peter D. Lambrecht, Majs Thomas E. Hicks, Jr, and Homer G. Hutchinson and Captatin Edward P. Stainback. Col Lambrecht returned to lead the famed "Bat Eye" squadron in the Philippines while Col Magruder commended the highest scoring Marine night fighter unit of the war—"Black Mac's Killers."

Maj Hicks, first of the group to return from England, acted as senior controller for Col Schwable's squadron in addition to instructing Navy fighter directors aboard destroyers in the South Pacific.

Though the actual combat experience, as such, of the Marine airmen who served as naval observers in Europe and Africa and who trained in England was comparatively little, their subsequent training contributions and combat records in the Pacific war were of inestimable value to the improvement of Marine and Naval aviation and the amphibious techniques of the entire Marine Corps. END

British Experiment With V2's

A GROUP of V-2 rocket-bombs were launched by British experts recently from Cuxhaven, in Germany, aimed at a target point area 150 miles out in the North Sea. Only one of them fell within an appreciable distance from the target point —and that was three miles away. These launchings followed intensive research and preparation based on such parts of V-2 weapons as were available after the collapse of Germany, together with statements of German rocket technicians on the methods they employed. Since no intact launching site was available, Royal Engineers constructed one in six weeks, complete with large buildings for the testing and assembling of the rockets. The work was carried out by scientific experts and technicians from the Ministry of Supply. These V-2's incorporated improvements designed by the British, and their launching was greatly assisted by newly-designed guiding devices. They are said to be the first launched since the last of more than a thousand hit Southern England before the end of the war.—Military Review.

The Atomic Bomb Tests and the Marine Corps

The coming atom bomb test will present to scientists their first chance to measure accurately the giant's strength

By Lt Richard S. Hodgson

JUST what the "Atomic Age" has in store for the Marine Corps will be one of the many results that the joint Army-Navy atomic bomb tests being held in the Marshall Islands may be expected to give.

Among the items of military equipment to be tested there, will be many familiar to marines. Besides the target ships to be used in the experiment, samples of most all implements of land warfare will be subjected to the destructive force of the atomic bomb.

Labeled "Operation Crossroads", the test will be the biggest peacetime military or naval experiment ever carried out. Some 42,500 soldiers, sailors, marines, and civilian scientists will make up Joint Task Force One. To these will fall the task of carrying out the experiment and then gathering enough information from the results so that the evaluation boards can clearly form opinions as to just what the capabilities of this new weapon are.

In the three "tests" thus far held with atomic bombs, there was little opportunity to learn a great deal about the bomb. In the first test held in the New Mexico desert, the race against time eliminated the opportunity to make a detailed study of the bomb's effects. In the "tests" at Hiroshima and Nagasaki it is obvious that no detailed study could be made of the direct effects of the bombs. However at Bikini, an attempt will be made to measure every possible effect of the bomb.

Actually plans call for two tests this summer and a possible third test sometime in the summer of 1947. The first test which will be held as close to July first as the weather allows will be a Nagasaki type bomb—the most powerful now known—dropped from a B-29 and exploding in the air over the target fleet. The second test will be held as soon as the results of the first test have been recorded and the ships rearranged, will be a bomb exploded either on the surface or just under it. The long-range planning calls for a third bomb to be exploded deep under the surface, but the actual details of this test will be formed after the other two have been completed.

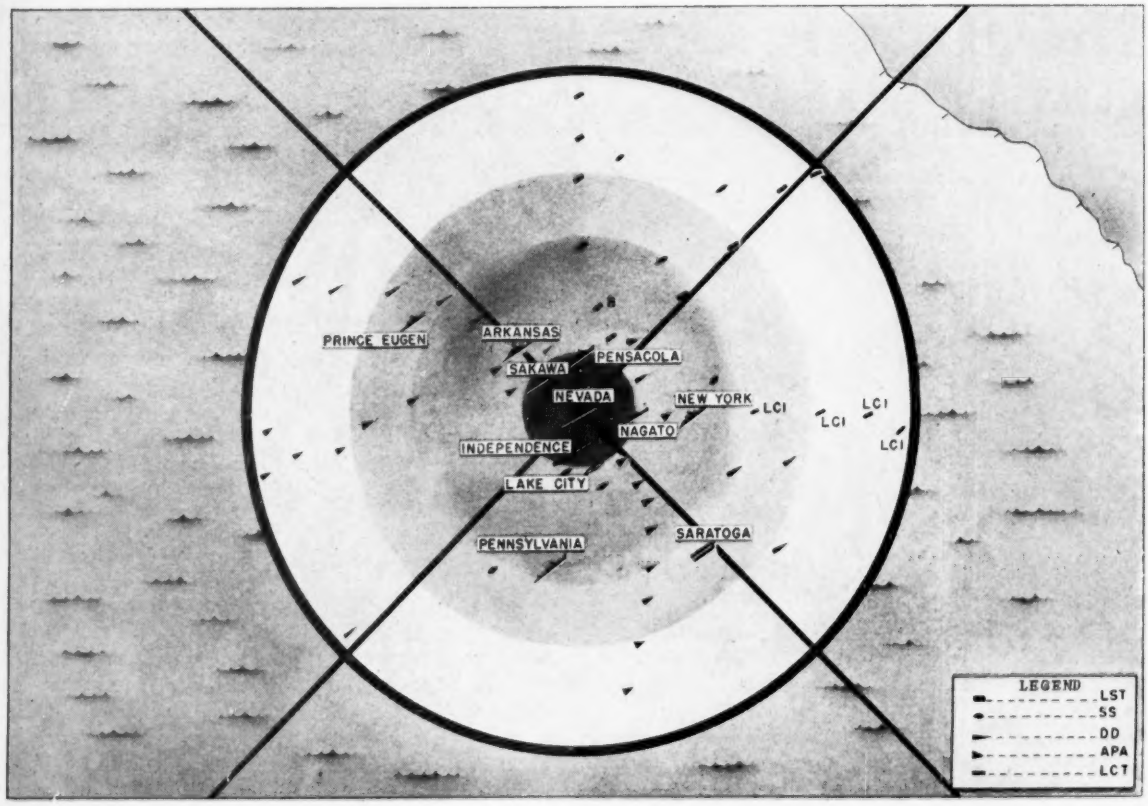
ViceAdm W.H.P. Blandy, USN, who commands Joint Task Force One, has pointed out that these tests are not ones designed to prove or disprove some large overall issue such as whether or not there will be a great or small airforce, navy or ground force. "We seek nothing but information," Adm Blandy said at a recent press conference. "From that information it may be possible for our nation's leaders to determine how to use atomic power in the best interests of our country—and, if necessary, how to defend ourselves best against possible attack by atomic weapons in the future."

The main purpose of the experiments is to test the atomic bomb against naval vessels in order to gain information upon possible required changes in ship design; tactical formations at sea and anchoring distances in port; the number and location of operating bases and repair yards; and the strategic disposition of ships.

But it is the secondary purposes with which the Marine Corps will be more immediately concerned. These include the testing of the bomb against aircraft, both airborne and grounded, and upon a wide variety of military ground weapons and equipment—in order to learn what redesign of any items may be necessary, and what may be needed in the way of dispersal to minimize the effects of the bomb.

Another of the purposes of interest to the Corps is the attempt to learn more of the various effects of the atomic bomb against living beings, in order to provide much needed information upon protection, early diagnosis, and treatment of personnel who may hereafter be exposed to atomic explosions, either in war or peace.

The testing of ground forces' equipment will be under the direction of Col John D. Frederick, USA, who commanded the 129th Infantry during the war. Ground Forces Advisor to Adm Blandy is MajGen Anthony C. McAuliffe, USA, famed for his "Nuts" answer to the Nazis during the "Battle of the Bastogne".



TARGET: this is the bull's-eye for the bombardier who drops the atom bomb.

The Army Quartermaster Corps and Ordnance Corps have been directed to supply test lots of all types of equipment for the operation. These will be placed on the decks of target ships. Aboard these vessels will be samples of nearly every type of clothing, processed and fresh fruits, vegetables, and cereal, as well as fuels, including petroleum products and coal.

The Quartermaster Corps will put aboard each of 19 Naval vessels standard test lots of Army rations which will be stored in protected sections of the ships and exposed on deck. Two of the primary purposes of the food tests are to determine how packaging will withstand the intense heat and flames resulting from the atomic bomb, and how foods will withstand the radioactivity and its residual effects. Whether food properly canned and packaged becomes inedible is one of the questions expected to be answered.

The effect of the initial bursts of heat on clothing also is expected to be determined along with what type of textiles will stand up best. Nearly every type of garment is to undergo the experiments to disclose what possible steps could be taken to develop clothing that will withstand the effects of an atomic bomb explosion. In the clothing tests, the protective qualities primarily are being sought, and the stand-up qualities are to be only secondary considerations. Fresh fruits are being placed on the vessels to learn the range of destruction to growing crops.

Identical 200-ton sets of ordnance items will be loaded on the *USS Nevada*, *USS Arkansas*, *USS Pennsylvania* and *USS Saratoga*. Ammunition will be divided into five identical lots and placed aboard five LSTs.

The material will be exposed on ship deck in field operation condition. Ammunition will be displayed in several stages of preparation, with some packaged in original shipping containers as it is stored in ammunition dumps, some in bulk containers, and the rest exposed in operating condition as it is used in the field.

Photographs will be made of the equipment before the detonation of the bombs. Immediately after the tests, ordnance teams will make detailed inspections and prepare complete records of the effects of the explosions. Staff officers will coordinate the team reports into a complete historical record of the ordnance phase of "Operation Crossroads."

Representative samples of all articles subjected to the blast will be returned to laboratories in the United States for more exhaustive study than is possible in the field. Effects of the atomic bomb not visible to the naked eye, which alter the strength, stability or functioning characteristics of food, clothing, fuel and weapons, will be recorded and included in final reports. END

The Development of

AMPHIBIOUS TACTICS

in the U.S. Navy

By LtGen Holland M. Smith

Illustrated by Sgt Franklin L. Jones

Part II

THE NAVY has been concerned with what Fleet Admiral Ernest J. King has termed "the most difficult of military operations" for 170 years. Early in 1776, our first Naval Squadron, which was established by the Contin ental Congress in the autumn of 1775, undertool as its first mission an amphibious operatior against the British fort at New Providence in the Bahamas.

The Squadron consisted of the ships *Alfred* and *Columbus*, the brigs *Andrea Doria* and *Cabot*, the sloops *Providence* and *Hornet*, and the schooners *Wasp* and *Fly*. It was under th command of Commodore Esek Hopkins. Includ ed in the complements of the vessels of the squadron were approximately 270 marines under the command of Capt Samuel Nicholas. The British, engaged in conducting a naval campaign of attribution along the Atlantic coastline, wer known to have stored considerable quantities of weapons, ammunition, and naval supplies a Fort Montague and Fort Nassau under the pro tection of a small guard detachment on this base and the seizure of the supplies would serve as a blow to British logistics, and the captured material could be put to good use by the hard-pressed Colonials, who were also hopeful of seizing enemy ships with which to augment their thin naval strength.

Commodore Hopkins decided to surprise the small garrison and land a landing force to cap-ture the fort and seize its stores. 220 Marines from the ships' detachments of the squadron together with 50 bluejackets under Lt Weaver of the *Cabot*, were embarked on two small sloops, and the command of this landing force was given to Capt Nicholas of the Marines. The transports were sailed in the van of the main force with the troops concealed below decks in order to gain surprise. However, the main body followed the sloops too closely, and the attacking force was fired on by the guns of the fort as it approached. The original plan was adhered to nonetheless, and the landing force hit the beach under a covering naval gun bombardment deliv-ered by the *Providence* and *Wasp* without opposition or loss. The British, taken by sur-prise, impressed by the strength of the squadron, and influenced by the diplomacy of Capt Nicholas, relinquished the fort and a total of 71 cannon, 15 mortars, and quantities of other stores including 24 kegs of powder.

In its first operation the Continental Navy conducted a successful combined land and sea action. An early precedent was established for the Navy-Marine Corps team, and the technique of planned operations involving the exercise of mutual support by naval and military forces was thereby initiated in the Navy. Barely three months after the founding of what later became the United States Marine Corps, marines were employed as specialists in ship-to-shore opera-tions. In the 170 years of existence that have followed, amphibious tactics have evolved through study, development, and practice as the chief concern of the Corps. The Marine Corps is small in relation to the Army and Navy. It has had continuous experience in peacetime and war in actual combat operations with both the Army and Navy, afloat and ashore, in varying conditions of climate and terrain, against a variety of enemies in all parts of the world. It has been assigned missions which have varied from punitive expeditions and small wars for the maintenance of law and order and the protection of American life and property to participation in the major land campaigns of the first world war and the assault landings of our Pacific offensive in the second. From its size, exper-ience, and mission, the Marine Corps has derived a degree of versatility which has fitted it well as the Navy's laboratory for the development of the specialized techniques of landing operations. In the twenty years before this war the Marines developed and wrote the landing operations doctrine, practiced and revised it in a long series of landing exercises with the fleet, played a

In this installment, amphib warfare from the Revolution to World War I

major role in the development of landing craft and equipment for its execution, trained officers and men in peacetime as amphibious experts, and finally proved the validity of modern amphibious tactics in combat at Guadalcanal. They have since refined and perfected these tactics in assault landings at Makin, New Georgia, Choiseul, Bougainville, Tarawa, New Britain, Kwajalein, Eniwetok, Saipan, Guam, Tinian, Peleliu, Iwo Jima, and Okinawa. The doctrine has been spread in the training of Army troops for amphibious employment under the supervision of Marine officers, who have served also as amphibious experts on Army and Navy staffs in all theaters of operation. Naval gunfire, air support and transport loading techniques have been developed by the Marine Corps for and in conjunction with the Navy. Both the Army and the Navy, as well as foreign military services, have made their own specific contributions to amphibious tactics, but credit for the initial development and the subsequent major revisions must go to the United States Marine Corps, an organization without parallel in the military services of other nations—specialists in amphibious warfare.

Between 1776 and 1846 the United States Navy was established and developed, but the period prior to the Mexican War saw little progress in the field of amphibious tactics. There were two further expeditions against New Providence in 1778, and in July 1779, marines and Massachusetts militia participated in combined operations against the British base at Penobscot Bay, Maine. Marines supported by gunfire from naval vessels landed artillery on Nautilus Island in the harbor to deny the enemy the use of the anchorage and to support future landings. Then, as assault troops, they seized a beachhead on a nearby peninsula under the cover of the island-based artillery to permit the subsequent landing of the militia. However, coordination between the landing force and the naval force was not good, and the troops received no naval gunfire support. The joint expeditionary force, which did not enjoy sea superiority at the objective area, was forced to evacuate the troops and withdraw in the face of fresh British naval forces before accomplishing its mission. The ships were scuttled and the force returned to Massachusetts overland.

IN the years following the Revolution, small mixed landing parties of sailors and marines were put ashore by naval vessels in the Mediterranean, Caribbean, and Pacific, in connection with naval operations against pirates, Indian wars, punitive missions, and moves to protect American lives and interests. Such landings were common for over a century. There were, however, no landing operations of tactical significance conducted prior to the Mexican war.

The war against Mexico, which began in 1846, was in a real sense a combined military and naval undertaking. The Navy played a decisive role in two distinct theaters of operations, and amphibious tactics reached a new level of development, which was little improved in the next seventy-five years.

From the strategic point of view, it should be noted that the United States held complete sea supremacy, both on the Gulf coast of Mexico and in the west along the Pacific coastline. Operations in the Gulf of Mexico were affected by bad weather conditions. Local gales, known as "northers," were prevalent throughout the winter. Navigation was made difficult for the major vessels of our Navy by sand bars and the shallow waters of the coastal harbors. Naval vessels were forced to operate at the end of extended lines of communication; the nearest base at the beginning of the war was at Pensacola, Florida, 900 miles from the Mexican coast. A final factor which affected operations in Mexico was yellow fever.

AT the outbreak of the war and in anticipation of hostilities, our Navy was disposed in both oceans with the Home Squadron under Commodore David Conner based at Pensacola operating in the waters off the Gulf coast of Mexico between the Rio Grande and the Tabasco, and the smaller Pacific Squadron, under Commodore J. D. Sloat, operating independently in the waters off California and Lower California.

There was a much stronger naval force available to the United States in 1846 than the one Commodore Hopkins had sailed against the Bahamas seventy years before. The Navy consisted of 11 ships of the line, 14 frigates, 23 sloops-of-war, 8 brigs, 8 schooners, and 8 steamers. The change from sail to steam had been initiated. The wooden-hulled, paddle-wheeled frigate *Mississippi* and the iron-hulled, screw propeller *Princeton* played major roles in the campaign of the Home Squadron. Smaller steamers such as the *Vixen, McLane, Petita* and *Spitfire* were indispensable for operations over the bars and in the shallow waters of the Mexican ports and rivers flowing into the Gulf. Notable improvements had also been made in the field of ordnance: explosive shells had been developed, powerful guns were being constructed, and armor was under consideration. Shore bombardment by naval guns was consequently more effective during the Mexican War than ever before.

The Navy's mission on the Gulf coast was two-fold:

1. To effect a blockade of Mexican ports and

1776—the Marines landed and took Fort Nassau from the surprised British.

to seize such harbors as were necessary to carry out this mission.

2. To support the army by maintaining se communications and, where required, to assis in landing operations on the seaward flank.

The mission of the Pacific Squadron was a similar one in respect to the blockade, but the role of the Navy in land operations was far more significant. Naval landing forces with the support of the vessels in the Squadron were largely responsible for the capture of California.

Mixed landing forces of marines and sailors, operating as a naval auxiliary, were organized from the ships of the squadrons when the need arose and used in operations for the capture of coastal ports. The primary tactical instrument, however, was naval bombardment. The landing operations were generally on a small scale and met with little resistance. The full effect of bombardment was realized by landing troops to occupy and destroy coastal forts and garrison abandoned cities. However, the organization of the landing force and the tactics evolved for ship-to-shore movement and fire support were significant developments. The seizure of ports by the Navy not only increased the effect of the blockade, but also served indirectly to support the operations of the Army ashore.

The well-coordinated joint operations conducted by Commodore Conner's Home Squadron and Gen Scott's Army in landing four divisions totaling 12,000 men in special landing craft under cover of naval gunfire at Vera Cruz was the most significant amphibious operation of the Mexican War. Although no opposition was encountered in the ship-to-shore movement, the precise execution of that phase of the operation was essentially a tactical movement.

Late in 1845, prior to the formal declaration of war and the invasion of Mexico, a detachment of the Home Squadron supported Gen Zachary Taylor's Army at Point Isabel in the disputed area north of the Rio Grande. A landing force of 500 sailors and marines from the frigates *Raritan*, *Cumerland*, and *Potomac*, under the command of Capt F. H. Gregory, USN, was put ashore to assist in the defense of the town. A landing force was initially organized around the separate mixed marine and bluejacket detachments of each ship. However, after protest the marines were organized as a separate battalion consisting of 145 officers and men under the senior marine officer present, 1stLt Lang. No assault landing was necessary and the force was employed in the defense and for garrison purposes.

With the declaration of war, a stringent blockade was imposed on Vera Cruz and other

important ports by the Home Squadron, which operated from a fleet anchorage at Anton Lizardo near Vera Cruz. Capt J. H. Aulick, USN, took a small mixed landing force up the Rio Grande from Point Isabel in small boats to assist the Army. The men of this unit proved to be the first American troops to land in Mexico. This river operation was the first of several conducted during the war.

CONNER, who had made repeated requests in vain for small steamers capable of operating shallow water, decided in August to capture the strongly defended port of Alvorado, which was second in important only to Vera Cruz. A sand bar offshore made it difficult to assure an effective blockade of the port and proved a serious impediment to landing operations and close-in bombardment. On 7 August 1846, after a six-hour, long-range bombardment by the steamers *Mississippi* and *Princeton*, small schooner gunboats and towboats with a landing force embarked, attempted to cross the bar and go up the river to attack the fort, under the continued protection of ships' guns. A strong current combined with heavy small arms fire from the shore to force the attackers to withdraw. In mid-October, a second attempt was made to capture Alvorado. In the interim two small steamers, the *Vixen* and *McLane*, and several schooner gunboats reported for service in the Squadron. The landing force of marines and sailors from the *Cumberland* and *Raritan* were embarked in the *Mississippi* under Capt French Forrest, USN, for employment *if required to support the close-in firing ships.* Here is an indication of the relative value placed on naval gunfire and the landing force. On 15 October the *Vixen* with two gunboats in tow and the *McLane* with three set out for an attack on the fort at the river mouth whose guns commanded the approach over the sand bar.

There were other Mexican forts up river and several enemy armed vessels in the harbor. The *Mississippi* fired at the fort from long range and the small gunboats fired as they approached. The *McLane* grounded on the bar and cast off its tows. In this emergency the landing force was disembarked but was not used. The *Vixen*, which had traversed the bar, withdrew, and the attack was called off. It is notable that there was no plan for a landing on an undefended flank of the fort followed by a subsequent land attack—tactics which were later successfully employed in similar operations by Commodore M.C. Perry.

On 23 October Commodore Perry, with a detachment of the Squadron and 200 marines and sailors from the *Cumberland* and *Raritan* embarked on the *Mississippi*, organized and equipped as a landing force for employment in small boats, undertook an attack against Frontera at the mouth of the Tabasco River. The landing force included the Squadron Marine battalion under the command of Capt Alvin Edson, USMC. The steamers *Mississippi*, *McLane*, and *Vixen* towed small boats across the sand bar successfully and the town surrendered on demand before a landing was necessary. Successful river operations including landings up the Tabasco followed. These were directed at the trading center of San Jan Bautista. The next attack was conducted against Tampico on 13 November. This port was needed as a base for Gen Taylor's Army, which was moving south from the border. A landing force numbering 300 was embarked on steamers, schooners and barges. The steamer, *Spitfire*, flying Commodore Conner's flag, towed the schooners *Petrel* and *Reefer* and several small boats. The steamer *Vixen*, flying Commodore Perry's flag, towed the schooners *Bonita* and *Monata* and other small boats. No resistance was encountered, and it was discovered that the Mexicans had evacuated the town. The technique of bombardment and cross-bar movement in small steamers and schooners initiated at Fronters was proved sound. Capt Edson and the marines garrisoned the town and on 17 November a small expedition conducted river operations.

THE success of the landing operations conducted by the Navy and the desire to force an early surrender, if necessary, by an attack against Mexico City, indicated a change of strategy. It was decided to shift the main effort from Gen Taylor's overland campaign and to land a major force at Vera Cruz. Gen Winfield Scott was given command of an army, which was assembled in southern Texas and from units of Gen Taylor's forces south of the border. The troops were embarked on a large fleet of army transports, organized and equipped for landing operations. The army's artillery included siege guns. The transports sailed to Lobos Island first for final training, equipping, and joint planning with the Navy. The Navy then convoyed the transports to the fleet anchorage at Anton Lizardo. There the troops were transferred to naval sloops. Each army division was loaded on two or more vessels of the Squadron. The 1st Division, which was to land in the assault, under BrigGen Worth, consisted of 4500 troops and was embarked on the *Raritan*, *Princeton*, and the army transport *Edith*. The Marine battalion, under Edson, was included in the task organization of the 3d Artillery. Surf boats, especially provided for the landing, were towed by the steamers. On 9 March, 1847, the force

Continued on page 43

CONCERNING BAZOOKAS

Where to put the bazooka—at the CP or on the front line? It's not always as easy to determine as it looks

By Capt Carl W. Hoffman
Illustrated by Sgt Svend Anderson

WHILE SITTING in the Camp Catlin Officer's Club one day, I overheard two captains as they talked "shop" and drank their beer. Though I knew neither of them, it soon became apparent that they were both former rifle company commanders, and that they both had combat experience. This was the gist of their conversation:

"Remember when we first got our bazookas? Was I snowed!"

"You weren't alone—we drew straws to see which company officer would be first to fire it."

"You lost, I suppose."

"No, my exec drew the honor—did all right too—then we all wanted to try it."

"Trouble was there wasn't enough ammunition to really practice it the way we wanted to."

"That's true, but one man in my company got so he could hit a bucket at 200 yards—it paid off too on Saipan."

"Yeah, I heard you guys really had a field day on Jap tanks."

"I guess that's the night I fell in love with the bazooka. Seriously though, Tom, it surprises me that so little has been written on the tactical employment of the bazooka."

"There isn't much to write, is there? Looks pretty obvious to me."

"Obvious? I wonder if you and I even agree on it."

"Well, the three bazookas belong to company headquarters and the best employment is to leave them there until a hostile tank attack develops—then quickly rush them to the threatened locality. What else?"

"Quickly rush them to the threatened locality? That's a laugh."

"A 'bazooka player' can move as fast as any other man!"

"True, but a tank moves much faster!"

"Yeah, but you can hear tanks coming and can start the bazookamen forward, can't you?"

"Providing the tanks are not just lying in wait until you advance to a convenient point, you should be able to hear them coming. But suppose you *do* hear them moving around somewhere to your front, you still can't predict within a thousand yards where the tank attack will strike. Then too, battle noises may throw you off."

"O. K., I'm not giving up understand, but I'm just curious—what do you advocate?"

"I say it's a front line weapon, designed to stop tanks in front of your leading riflemen."

"Go on—."

"I feel that your idea of rushing them to the threatened locality makes more sense as a mission for the regimental weapons company—they can really move!"

"Looks to me like you consider your bazookamen pretty expendable."

"Well, aren't we all?"

"I suppose so, but after all, the bazooka is a valuable weapon—I don't like to lose it."

"Neither do I—but let's not ignore the psycho-

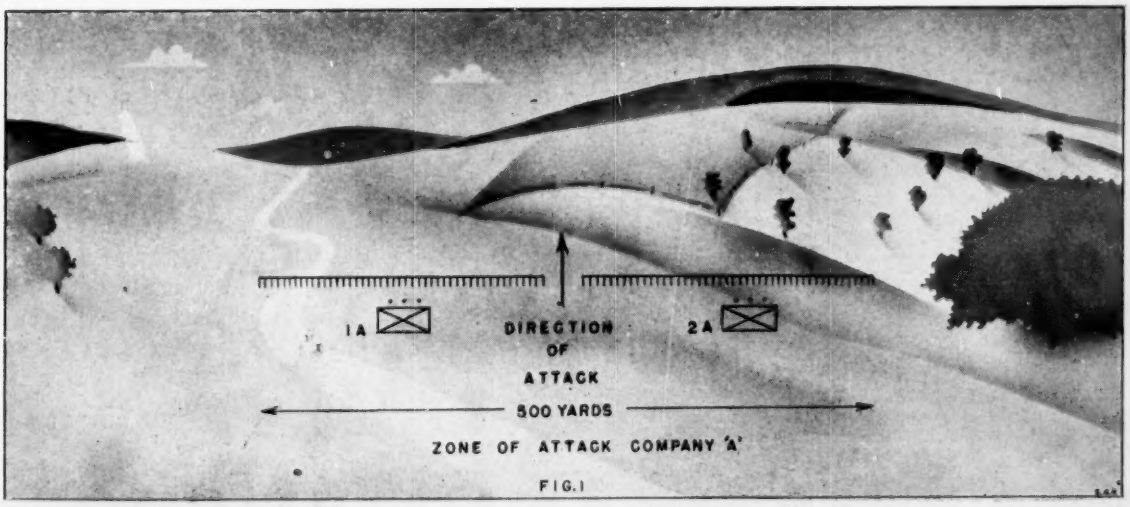


FIG. 1

logical advantages of having the bazooka far enough forward so that the assault platoons can feel a certain amount of security from tanks."

"Wait a minute—don't try to snow me with the psychological aspects; we won't knock any tanks out with psychology."

"Well, let me go on—I believe the company commander should look over his zone of action and decide which assault platoon is operating in the most likely terrain for hostile tanks and attach the bazookas to that platoon."

"What do you mean—likely terrain?"

"Maybe a little sketch will illustrate what I mean. Looking at this, what would you say?"

"Why, I'd say that the 1st platoon is operating in more likely terrain for hostile tanks than the 2nd platoon. Plus that, they appear to be straddling a road; that always makes it dangerous when you've got a road leading into your front."

"Exactly—now we're thinking along the same lines: that sketch means the same thing to me."

"I suppose you'd favor attaching the three bazookas to the 1st platoon then."

"Right."

"What if your analysis turned out to be wrong, and the 2nd platoon got attacked by tanks? Where would we be then?"

"Just where we'd be if they were back at the company CP. It would take no longer to move them laterally from the 1st platoon to the 2nd than to move them up from company headquarters. In either case the move would be complicated by hostile fire."

"On that particular sketch, I agree, but after all, we seldom run into a zone or action which is so sharply divided into good and bad tank terrain as that. What if the 2nd platoon's zone hadn't been quite as difficult for hostile tanks to negotiate?"

"Then I would have given the 2nd platoon one bazooka and left the other two with the 1st."

"Let's change your sketch around a little. Take away the road and the obstacles for tanks. Now they're equally threatened."

"Right."

"What will you do now? Leave them in company headquarters and rush them to the threatened locality?"

"You're determined to get that in, aren't you? No, I still want them well forward somewhere between the assault platoons."

"You mean they're going to wander along generally between the two assault platoons? How will you control them? You rate no communication for the bazookas."

"I hate to admit it, but I believe you've found a loop-hole in my argument. Still, I can't agree with your company headquarters answer."

"Perhaps we would be close to it if we split the difference. You've pretty well convinced me that company headquarters is a poor place for the bazookas yet your plan leaves a lot to be desired. What about this: In open terrain where both assault platoons are equally threatened, the bazookas should remain near the company commander at his observation post. This would insure their being relatively well forward, would facilitate easy control and I believe is the best answer."

"But I certainly wouldn't want three bazookamen around the OP all of the time."

"They wouldn't have to be right underfoot; they would remain a short distance away, under the command of an NCO."

"Now wait a minute—you know as well as I that we don't rate a bazooka section leader."

"Quite true—but what about the company gunnery sergeant? He has little enough to do once the attack jumps off and he could very well be designated as bazooka section leader."

"Good idea, the gunny would be excellent for the job and could be made responsible for their training as well as their control in battle."

"You know—you're right—this bazooka business isn't so obvious after all. Care for another beer?"

"Please."

END

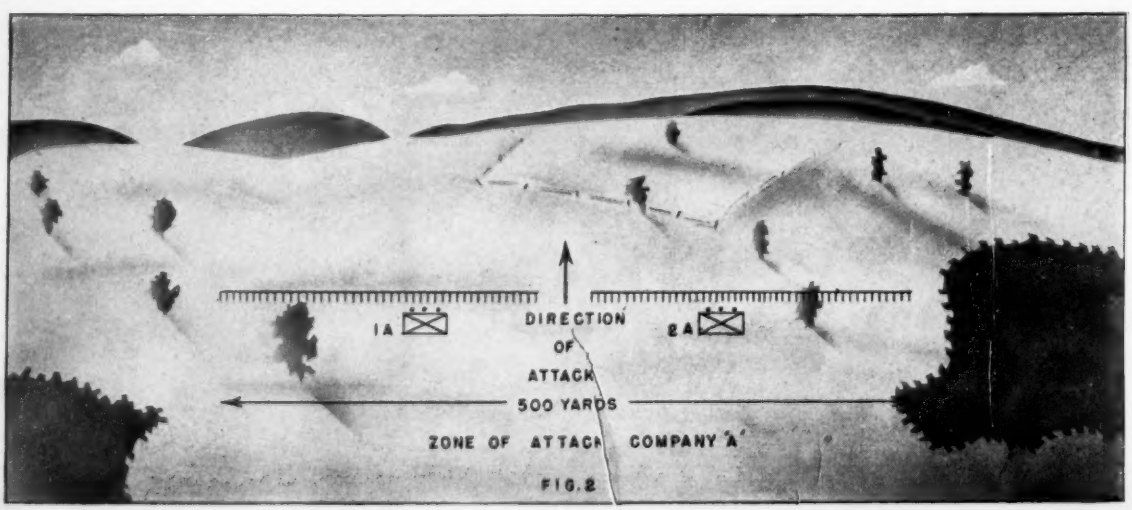


FIG. 2

THE MARINE CORPS Gazette
THE PROFESSIONAL MAGAZINE
FOR UNITED STATES MARINES

Statement By
General Alexander A. Vandegrift, USMC
Before
The Senate Naval Affairs Committee
Hearings On S. 2044

Never has the role of the Marine Corps in peace and war been summarized better than in the Commandant's speech to the Senate Naval Affairs Committee on 6 May 1946. Although this address was widely quoted and reported in the public press, the Gazette feels that this, the complete and unedited record of Gen Vandegrift's remarks, should be available to all professional marines in a permanent form. Additional copies will be supplied upon written request to the Editor.

LAST autumn I testified before the Military Affairs Committee on the subject of unification of the Armed Forces. Since that time the real points at issue have been brought into sharp focus, and it is now evident that the entire problem revolves about two fundamental theories which stand squarely at variance. On the one hand is the War Department General Staff theory—implemented in S. 2044. This contends that the complexities of modern warfare justify an extension of political-military control into fields of government which are essentially civilian in character. Standing in direct opposition to this theory is the Navy's belief that those same complexities in modern war indicate a need for broader participation and closer attention by the civilian elements of government, all coordinated by an authority with roots in the Congress, rather than in the Pentagon.

Beyond the foregoing general observation regarding basic factors I do not propose to tax this Committee with a further restatement of the detailed faults, weaknesses and inequities existing in the War Department merger plan. These have already been explored thoroughly and are well known. Instead, I intend to devote my time before your Committee to a subject with which I am thoroughly familiar and one which, in the light of current developments, I feel it essential that the Committee appreciate fully before the close of its deliberations. That subject is the specific effect which approval of the pending unification measure would have on the United States Marine Corps.

Marines have played a significant and useful part in the military structure of this nation since its birth. But despite that fact, passage of the unification legislation as now framed will in all probability spell extinction for the Marine Corps. I express this apprehension because of a series of facts which I feel must now be placed in your hands as an important element in your deliberations. They may be summarized in one simple statement—that the War Department is determined to reduced the Marine Corps to a position of studied military ineffectiveness—and the merger bill in its present form makes this objective readily attainable.

For some time I have been aware that the very existence of the Marine Corps stood as a continuing affront to the War Department General Staff, but had hoped that this attitude would end with the recent war as a result of its dramatic demonstration of the complementary and non-conflicting roles of land power, naval power, and air power. But following a careful study of circumstances as they have developed in the past six months I am convinced that my hopes were groundless, that the War Department's intentions regarding the Marines are quite unchanged, and that even in advance of this proposed legislation it is seeking to reduce the sphere of the Marine Corps to ceremonial functions and to the provision of small ineffective combat formations and labor troops for service on the landing beaches. Consequently I now feel increased concern regarding the merger measure, not only because of the ignominious fate which it holds for a valuable corps, but because of the tremendous loss to the nation which it entails.

The heart of the Marine Corps is in its Fleet Marine Force, an organic component of the U. S. Fleet, consisting of the amphibious assault divisions which spearheaded our Navy's victorious westward march across the Central Pacific, and the Marine Air Arm whose primary task is the provision of close air support for the Marines who storm the beaches. The strength of that Fleet Marine organization lies in its status as an organic element of our fighting Fleet;—prepared at any time and on short notice to extend the will of the naval commander ashore in the seizure of objectives which are vital to the prosecution of a naval campaign or in the protection of American interests abroad. This is the demonstrated value of the Fleet Marine Force, a powerful source of ready strength to the nation, both in war and in peace.

A SIGNIFICANT corollary to the fighting function of the Fleet Marine Force, and actually the one which has required the most sustained effort, is the task of developing the techniques, doctrines, equipment and procedures which relate to the amphibious specialty. The Marines have pursued this effort continuously throughout their history, and during the period between World Wars I and II, the Corps recorded what history will prob-

ably assess as the most significant of its many contributions to the development of our national strength.

During that lethargic period of peace, even as early as 1921, the Marine Corps accurately forecast the exact pattern of the coming war against Japan. We were impressed by its amphibious character but the sombre lessons of the Dardanelles Campaign were fresh in our minds, and we resolved that the coming amphibious war would not involve a repetition of the shambles of Gallipoli. We devoted all our efforts and most of our slender resources to the task of analyzing the Dardanelles failure and developing a modern amphibious technique which would bring together the land, sea and air forces in united action in execution of this most difficult problem of warfare—the major landing operation. In conjunction with the Navy we provided the nation with a doctrine, technique, method, and equipment which became the standard pattern of amphibious warfare adopted not only by our own Army but by the armies and navies of eight United Nations as well. It proved to be the key to victory in every major theatre of the war and I believe it to be the most important contribution any American service has ever made in the field of purely prospective development of a form of major warfare.

It is notable that no parallel effort was being made anywhere by the world's armies and navies with the possible exception of the Japanese. It is significant that professional military opinion throughout the world was bemused by the axiom that: a landing against resistance is an impossible feat of arms. We knew in 1921 that victory in the coming war would require innumerable such landings and we worked to make them possible, not only for ourselves but for our Army and the Armies of our allies. We take pride in the fact that over forty of our new national army divisions, as well as many belonging to the Allied armies, were trained in amphibious warfare by the doctrines we devised and that these same forces acquitted themselves so well in the amphibious phases which were a prelude to the great invasions.

THIS unique American achievement was made possible mainly because of the existence of a vigorous Fleet Marine Force, in whose practical laboratory the research and development was conducted. But that Force will almost certainly be transformed into an ineffective military nonentity if the merger legislation now before this Committee becomes law. That bill gives the War Department a free hand in accomplishing its expressed desire to reduce that Fleet Marine Force to a position of military insignificance, restricting its combat elements to small, lightly armed detachments and units which would be of little significance in amphibious warfare as we know it today. If the title Fleet Marine Force is retained at all it will serve only to dignify what actually is merely a shadow of a military body—one of no ponderable value to the Navy or the Nation.

TO begin with, it should be observed that, because of the character of the war just ended, great attention was focused on amphibious operation. There is, however, no real reason to believe that this particular form of special operation will occupy a different place in the event of another conflict than it occupied in the first World War or the American Civil War—a special operation incident to the conduct of the Naval campaign.

Second, it is to be realized that the Marine Corps is a small, highly skilled body of specialists which has earned world-wide professional prestige without benefit of West Point tradition or General Staff direction. Its success rests squarely on its development of a form of military service based on the premise that while the American man in uniform is a warlike individual, he does not respond to methods applicable to the conscript armies of Central Europe. The Marine Corps' guiding principles stem from such intangibles as democracy, recognition of the individual, and the timeless value of personal leadership as opposed to machine direction.

A final, and not inconsiderable, factor has its roots in simple manpower mathematics. This same Congress has recently, and upon mature deliberation, fixed the strength of the Marine Corps. Despite this fact there is still a clear realization in the confines of the War Department General Staff that the smaller the Marine Corps the less its demand on the manpower of the nation—to the ultimate advantage of an Army which traditionally in time of peace is faced with a difficult problem of recruitment.

It may be said that the apprehensions which I have just voiced are unnecessarily pessimistic, that the value of the Marine Corps is so obvious that its destruction is unthinkable—its perpetuation a foregone conclusion. Nevertheless, I know that the War Department's intentions with respect to the Marine Corps are well advanced and care-

fully integrated. I have seen them in a form emanating from the highest quarters of the War Department. And I also know that the structure of the unification bill as it now stands will provide perfect implementation for those designs. Under the provisions of this legislation the single Secretary for Common Defense and the all-powerful National Chief of Staff are entirely free either to abolish the Marine Corps outright or to divest it of all its vital functions, leaving only a token organization in order that the name of the Corps may be preserved. And if the proposed Chief of Staff is of Army antecedents I feel there is strong possibility that that is precisely what will take place. Finally it is of great significance to note that, as the bill is now framed, this summary and altogether arbitrary action could be effectuated by simple departmental order, without prior reference to the Congress.

THE foregoing summarizes what, in all probability, will happen to the Marine Corps if the current merger legislation becomes law. It summarizes *why* it will happen, and *how*. However, it does not give any evidence of the disastrous effects which loss of the Marine Corps will have on the Nation itself. The first and most serious of these effects is the loss of the nation's primary force in readiness. The results of such a situation may be exemplified by considering what would have befallen our nation had there been no Marine Corps standing in readiness in the early days of the recent war.—The occupation of Iceland, when Marines were put in motion within a matter of hours, would have been delayed for months, because there was no Army force ready to undertake the task. The operation against Guadalcanal could not have been launched when it was, because there were at that time no Army troops prepared to conduct amphibious assault operations. And had we been without a vigorous and effective Marine Corps at the onset of the war the United States would have found itself in the hapless position of the British who, for the want of a small professional landing force, suffered a disastrous strategic defeat in Norway. It will be remembered that the German resources in northern Norway were, for a time, badly over extended, and that the British Home Fleet was able to steam with impunity into Trondjem Fiord and shell the lightly held city. But the Home Fleet had no organic Fleet Marine Force to land and seize the strategic town.—The Royal Marines, traditional troops of the British Navy, had been divested of their amphibious functions and were engaged in duties of lesser significance—such as operation of landing boats. By the time Army troops could be alerted for the task the fleeting opportunity was lost and German strength in northern Norway had reached such formidable proportions that an attack was no longer practicable. This parallel between the British disaster and our military future under a defense structure dominated by the War Department cannot be ignored.

It is particularly significant to note that this demonstrably inadequate employment of the British Marines is the precise pattern of the War Department's conception as to the function of our own Marine Corps. The Royal Marines lacked a modern form of amphibious organization enabling them to carry out their mission with the fleet; and it is that identical organization in our own Marine Corps which the War Department seeks to reduce to ineffectiveness. I can likewise add that latest advices are that as a result of the war the Admiralty has initiated an expansion of the missions and functions of the Royal Marines to a status more nearly corresponding to our own.

BUT it is not in the matter of major wartime employment alone that the value of a Marine force in readiness is realized. The Marines serve another continuing purpose—the provision of forces to protect our national interests abroad in peace as well as in war. Here in my hand I have a State Department publication entitled "Right to Protect Citizens in Foreign Countries by Landing Forces" which records the significant fact that of 61 such operations conducted at the instance of the State Department prior to 1933, the Marine Corps participated in all except 11. And as further emphasis on their position as the nation's primary ready-to-act force it is in point to recall that the Marines have had forces actually operating in the field for 49 of the last 50 years, and have engaged in actual combat in 27 of those same years.

This is only the first loss which the nation would suffer in the destruction or eclipse of its Marine Corps.—And it is a loss which cannot be compensated by the part-time assignment of Army troops to naval purposes, for it is not the genius of a National Army to act as a highly mobile fighting force in instant readiness. Armies are ponderous; they organize and prepare for operations with care and deliberation, and they have great staying power. While these are unquestionably ad-

mirable virtues, they still are not the characteristics which go to make up an effective, mobile, amphibious fighting force, in peace or war—a force ready to act as a part of the Fleet at any time.

THIS, indeed, is the fundamental difference between the Marines and the Army and the effect of this difference has been manifest many times. There is a continuous record of instances in our national history where the Army could not move at all, or could not move soon enough to satisfy the needs of the situation—Cuba in 1906, Vera Cruz in 1914, Iceland in 1941 and Guadalcanal in 1942, are only a few typical examples which demonstrate the point I make. In each case the Army arrived on the scene only after the objective sought by the United States had been accomplished by Marines. This is not offered in criticism of our Army but as a factual statement of the effect of basic functional differences. These may be summarized in a simple statement—that no matter how hard it tries, a great national Army cannot be a specialist Marine Corps—and still be an Army.

It is a Marine's duty to be ready anytime, and I am pleased to be able to report to you that the condition of readiness prevails within the Marine Corps today. Our field forces are fully prepared to take the field at a moment's notice. They are well trained and are prepared to carry out their functions with their customary efficiency, spirit and morale, at a time when the responsible heads of other services are complaining of disintegration of fighting power accompanied by problems of low morale and deterioration of discipline. I can assure you that these conditions are not existent in the Marine Corps. *The Marines are ready,* and if it came to a fight today I do not know who could replace them.

A second and extremely significant advantage which would pass with the destruction of the Marine Corps is the preeminence we have enjoyed heretofore in the field of amphibious development. The United States entered the past war in the enviable position of knowing more about amphibious operations than any other nation in the world. It cannot be said, however, that the same favorable circumstances existed with respect to the other specialized forms of warfare.

But our dominant position in the field of landing operations did not come about by chance.—It was the logical issue of twenty years of conscientious devotion by the Navy and Marine Corps to the complexities of the amphibious subjects;—to the development of the detailed techniques, doctrines and equipment which later proved of such value to the armed forces of both our own and allied nations. This success in the field of amphibious development is directly attributable to one fact and one fact only;—that the Marines have always viewed the landing operation as a specialty—*their* specialty, and their efforts have been oriented in that single direction on a full-time, year-in-and-year-out basis.

But without a vigorous Marine Corps, the country will be dependent for its amphibious progress on the Army—an Army with a myriad of other more general, and perhaps more vital, concerns related to the security of the United States. Under such circumstances the amphibious project, heretofore the subject of our full-time devotion, would take its place as just one more of the Army's long list of special problems;—alongside such matters as fighting in the mountains, the jungle, the desert, and in the snow. There is thus every indication that our future capacity to conduct amphibious warfare would be seriously impaired.

If this conclusion seems unwarranted, one has only to consult the Army's governing tactical document, the current Field Service Regulations. In that book, out of a total of 1094 paragraphs, exactly eight are devoted to amphibious operations, and furthermore the subject is assigned last place in the discussion of the twelve special forms of military operation,—appearing directly after Partisan Warfare.

HISTORICALLY it is likewise patent that specialties do not flourish under our War Department. The vast programs related to the security of our nation and its possessions seem always to eclipse the need for impetus which a growing specialty requires. There may be a flurry of passing interest, as is now being manifested in the superficial elements of the landing operations field, but the end result is almost invariably the same.—A minimum of nourishment for the specialty; restricted development amounting to almost total eclipse, and finally an inadequate state of readiness at war's onset. Outstanding examples of this situation are to be found in the fate of two specialties which were the subject of world-wide development between the two world wars;—namely, airborne operations and armored warfare.

The groundwork for study of airborne tactics was laid by the Russians during the 1930s. With our superior technical capabili-

ties it might have been assumed that the United States would strike boldly into the airborne field and soon occupy a dominant position, but this did not prove to be the case. Although the Russians continued their developmental program and were soon outstripped by Nazi Germany, the United States still did next to nothing.—So little in fact that General Devers, in his recent report on the activities of the Army Ground Forces in the war, was constrained to observe:

> "The Nazi use of airborne troops in Holland and Crete made the world gasp, and their parachute regiments, so successfully demonstrated there, *were the originals on which our airborne division was patterned about a year later.*"

THUS our technical excellence, which might have served such a valuable purpose in the development of the airborne field, was left unexploited and we entered the war in the unenviable position of having to copy from our enemies in a subject which was peculiarly adaptable to the capabilities of our own country.

In the matter of the armored warfare specialty, the story is essentially the same.—The closing events of World War I made clearly apparent the part that armor would subsequently play. Despite that fact, in 1920 the Army Tank Corps was abolished and all tank units were absorbed into the Infantry. In the ensuing years we made little progress in tank development because tanks were a specialty, and specialties do not flourish in our Army. Indeed, as late as 1932 we still possessed large numbers of World War I tanks—of French design, and the idea of a mechanized force, then receiving worldwide attention was repudiated by the War Department. Actually it finally required vigorous action by the Congress of the United States to impel the War Department into coordinated action in the tank field.—It was this very body that in 1932 incorporated in an appropriation act the provision that no monies might be expended for the maintenance or purchase of fuel for overage military vehicles. And it was only after this effort on the part of the Congress that our belated armored development began. But as a result of this delay the United States,—the greatest industrial nation in all the world,—entered the war with a tank inferior to that of our German enemy;—inferior even to that of our less richly endowed British and French allies. And despite our most determined efforts to match the German development we ended the European war with a standard tank which many of our own experts characterize as inferior to the German Royal Tiger.

BUT such was not the case with amphibious operations. As I have noted previously we entered World War II with unquestioned superiority in the amphibious field over every other nation in the world. The benefits gained and the lives saved by that superiority were of course incalculable. But in any event it is plain to see that we would have indeed been in serious difficulty had the Marines' development of the amphibious technique proceeded no further than the kindred development of airborne and armored operations. For this reason I strongly urge this Committee to oppose any legislation which will place the problem of amphibious development in a category in any way comparable to that occupied by our unfortunate airborne and armored programs before the war,—unless there exists some certain and unquestioned compensation to be realized in exchange for the sacrifice.

I, for one, fail to perceive any possible compensation, however small, either in economy, increased efficiency or in elimination of duplication. As regards economy the Marine Corps has throughout its existence maintained a reputation for utmost frugality, sometimes bordering on penury. In the days of peace preceding the recent war, the United States was possessed of the world's top ranking Marine Corps. In 1938, that investment in security cost the nation about $1,500 per Marine. At the same time the United States possessed the world's *18th place* Army—at an annual cost of over $2,000 per soldier.—This is surely no indication of possible economies to be expected in compensation for the sacrifice of a proven professional fighting force.

In the matter of efficiency I have only to refer you to the manner in which the Marines prepared for the war just past and to the manner in which they fought that war. A similar assessment of the manner in which the War Department prepared its forces for the conflict and of the manner in which its operations were conducted gives no slightest indication that an exchange of Marine specialists for soldiers would result in increased efficiency in the amphibious field. In fact, such an analysis might indicate that the country would not long remain in a position to wage amphibious warfare on the same professional basis as heretofore.

And finally there is the matter of duplica-

tion. The War Department is now contending that the amphibious efforts of the Marines, despite their century and a half of precedent, are an invasion of the Army's sphere,—an unjustified duplication. In that regard I wish to state that no such duplication exists. The amphibious specialty is the Marines' sphere, and the Army is not and never has been in the amphibious field. It does not have the schools, the training facilities, the development agencies, or the continuity of experience which are essential complements to the maintenance and development of a full-time amphibious specialist force. Furthermore, those Army troops which took part in landing operations during the past war were actually applying the principles and using the techniques, methods and equipment developed by the Marine Corps. In some cases they were even trained by the Marine Corps. At the present time the Marines are continuing their devotion to the study and perfection of their specialty,—standing ready again to impart their knowledge, whenever needed, to any other element of the armed forces. So, if at this time the War Department undertakes to set up the mechanism to enter the amphibious field, *a source of duplication will indeed exist*, but the responsibility for that duplication will rest not with the Marines but with the War Department.

AND as a final element of the cost to the nation, hidden in the pages of S. 2044, I feel it in point to observe that in sacrificing its Marine Corps the country would lose more than a highly trained and thoroughly proven body of fighting men. It would lose a symbol of real democracy,—a truly American form of expression of military service. Military service is an honorable thing; in the Marines men and officers believe in it. And the relationships between officers and men of the Marine Corps have long rested on a sound basis. Reforms which elsewhere are only talked of today were carried into effect in the Marine Corps at the close of the last war—27 years ago. Our discipline is strict but it has been humane and based on understanding. I am proud to be able to report to you that the Marine of World War II had the same regular character and steadiness in battle that distinguished his predecessors from the Revolution onward. He was the average of all American boys, but in him our system was able to develop, rather than suppress, his native American character, courage, and faith It is a notable fact that few men have ever left the Marine Corps without a feeling of undying loyalty toward it. I think these things are proof that our system is good and that it is worthy of preservation.

I realize that the observations which I have made today are of a thoroughly unequivocal nature, but I can assure this Committee that my expressions are based on fact and not on conjecture. In making those statements I feel that I have acted in a dual capacity—as a professional military specialist who by experience is qualified to advise the Committee in his specialty, and at the same time as a citizen of the United States who should not stand unheard while ill befalls his country.

THE Congress has always been the nation's traditional safeguard against any precipitate action calculated to lead the country into trouble. In its capacity as a balance wheel this Congress has on five occasions since the year 1829 reflected the voice of the people in examining and casting aside a motion which would damage or destroy the United States Marine Corps. In each instance, on the basis of its demonstrated value and usefulness alone, Congress has perpetuated the Marine Corps as a purely American investment in continued security. Now I believe that the cycle has again repeated itself, and that the fate of the Marine Corps lies solely and entirely with the Congress.

In placing its case in your hands the Marine Corps remembers that it was this same Congress which, in 1798, called it into a long and useful service to the nation. The Marine Corps feels that the question of its continued existence is likewise a matter for determination by the Congress and not one to be resolved by departmental legerdemain or a quasi-legislative process enforced by the War Department General Staff.

The Marine Corps, then, believes that it has earned this right—to have its future decided by the legislative body which created it,—nothing more. Sentiment is not a valid consideration in determining questions of national security. We have pride in ourselves and in our past but we do not rest our case on any presumed ground of gratitude owing us from the nation. The bended knee is not a tradition of our Corps. If the Marine as a fighting man has not made a case for himself after 170 years of service, he must go. But I think you will agree with me that he has earned the right to depart with dignity and honor, not by subjugation to the status of uselessness and servility planned for him by the War Department.

In Brief...

Marine reserve and selective service personnel volunteering to remain on active duty until 1 March 1947, will be eligible for nomination to the Naval Academy Preparatory School, providing they meet age, educational and physical requirements. Nominations for the 1 October class closed on 17 May 1946. Nominees must continue on active duty until the date set for the beginning of the competitive examination for appointment to the Academy. A candidate, to be eligible, must have three years of high school study or its equivalent, must be able to pass the required, rigid physical examination, and must not be younger than 17 nor older than 23 years of age. The age limit is extended to 23 for candidates with a year or more of active service.

Special guarantees of rank were offered by Headquarters, Marine Corps to all marines who have been discharged since 1 September, 1945, and who reenlist even after the usual 90-day period. This latest action, designed to attract experienced men to the Corps, sets forth the following provisions: 1) Anyone who was in the first pay grade (sergeant major, master gunnery sergeant) at the time of discharge will be reinstated in the third pay grade as a staff sergeant or platoon sergeant; 2) Anyone who held rank in the second or third pay grade will be reinstated in the fourth pay grade; 3) Anyone who was in the fourth pay grade will be reenlisted in the fifth pay grade as corporal.

Nearly 90 percent of the total strength of the Marine Corps in World War II served overseas. Of the 41,490 Marine officers, 41,240, or 98.3 percent served overseas. Of the 547,912 enlisted marines in this war, 487,229, or 88.9 percent, served outside the continental limits of the United States. Total Marine strength in service during the war was 589,852, of which total 528,469, or nearly 90 percent, served overseas. By far the largest group of overseas marines, 396,767, served with the FMF which comprised the Marine amphibious warfare element, including the six divisions. Marine aviation units overseas totaled 93,796 officers and men and there were 22,466 marines aboard warships.

Japan was so short of fuel in the closing months of the war that soybean oil was used to power the superbattleship *Yamato* on her final suicide mission against Okinawa, 7 April 1945, it was recently disclosed by a U. S. Navy technical mission. Other curious items turned up: food was so short that the Japanese considered dumping rafts of supplies into the sea off Korea and Formosa in hope that the currents would carry them to Japan; illumination for reading maps at night on battleships was provided by grinding aquatic animals into powder—the resultant glow being slightly less brilliant than a flashlight.

Two American servicemen who presently lie dead overseas may join the Unknown Soldier of World War I in rest along the banks of the Potomac River, in Arlington, Va. The Senate Military Committee has recommended two ceremonial burials in Arlington Cemetery, one body to be taken from the European Theater and the other from the Pacific area. An earlier House Bill provided for only one burial, but the discrepancy will be ironed out with the Senate version probably being adopted. The Unknown Soldier of World War I was buried in Arlington Cemetery on Armistice Day, 1921.

With 1666 Navy, Marine Corps and Coast Guard personnel still unaccounted for, the Navy has ended its searches in the Pacific area for missing personnel. Adm John H. Towers, Pacific commander-in-chief, has sent word to Washington that searches of all land masses, islands and atolls in the Pacific Ocean area, first by plane, then by shore parties, have been completed. Searches are still under way in the Netherlands Indies and Indo-China, but these are under jurisdiction of the respective governments, with cooperation of U. S. Navy representatives assigned to the areas. The rolls of missing still include 1478 Navy, 105 Marine, and 83 Coast Guard personnel.

The Navy Department has received many recommendations for awards in recognition of acts or services performed subsequent to the cessation of hostilities. To merit an award, the act or service must have been of such unusual character as to merit recognition in time of peace. If part of the service was performed prior to the limiting date, 2 September 1945, only that part shall be considered for an award. If the service extended past 2 September 1945, it must meet the exacting requirements of a peacetime award. Authority to make awards for acts occurring after 2 September is withdrawn and delegated to the Secretary of the Navy.

The Case Against The Critics

By Agnes T. Hirshinger

FOR TWO YEARS I was an enlisted woman in the Marine Corps and I am proud of it. But since my discharge I have learned via the newspapers, the radio and the opinions of various authors that I have no right to be proud —that on the contrary, for two years I was the downtrodden, underprivileged victim of an undemocratic military system. From what I have heard and read I have gathered, that I, being a veteran of the late war, came out of the service filled with class-consciousness and resentment: that my individuality was stifled and my rights to life, liberty, and the pursuit of happiness contravened.

Now I don't like that. It belittles my self-respect and my intelligence. Further, these allegations seem to me to be the results of deliberate misconstruction, or at least, of muddled thinking. Now that the war has been won, it has become fashionable to imply that victory came spite of the services. The distinctions of privilege between officer and enlisted personnel, the poverty of material reward, and the disciplinary barriers to free expression have all come in for criticism ranging from the contemptuous to the vituperative. Such criticism has been met by professional soldiers and sailors with admirable self-control. But it appears to me, as an American deeply concerned with the preservation of our respect for national institutions, that this situation calls for more than just dignified reticence on the part of the professional soldier and sailor.

I am not implying that the services should resent or object to criticism as such. Sincere and objective criticism is a healthy thing. The services must show willingness to breathe and grow with the country. They cannot take a stand behind tradition and maintain that because the system is old, it is therefore good. In the modern world, improvements have the edge on established practices. Unless it is inherently logical a system based on tradition cannot stand up under the basic American test of efficiency. I believe the military system *is* logical. I believe it can meet the arguments raised against it wherever they may be advanced.

An almost hysterical furore has been raised against the so-called "caste system." Apparently the greater part of our population considers it has stumbled on something hidden and evil, which must be eradicated as incompatible with the American ideal. The hue and cry against "class consciousness" has been whooped up with a vigor that is rather suspicious in Americans, who are not as a rule class conscious until they are told to be so. There is little point to all this uproar. Of course class distinctions exist in the services, and the first three pay grades have a few more privileges than the last four, and the warrant officer a few more yet, and the commissioned officer as his rank ascends acquires still more. What of it? I worked for 15 years prior to my enlistment, and I did not find the social disciplinary distinctions between commissioned and enlisted personnel in the service very different from those that exist in any commercial outfit between the officers and employees of the corporation. The civilian is employed eight hours a day, and while he is so employed he is required to obey and defer to those appointed over him, regardless of his personal opinion as to their actual superiority. At the end of his working day he is at liberty, if his finances permit, to live as he pleases although it is extremely doubtful if the president of the General Motors, for example, would be overjoyed to find one of his office boys a member of his club. Since the stratum of society in which the office boy moves is normally quite different from that which contains the president, nobody in his right mind worries particularly about this (let alone the office boy), and General Motors is not publicly castigated for maintaining a "caste system." Providing he could afford it and was a gentleman, I have never seen an enlisted man barred from even the most exclusive places. Certain on- and off-station activities are restricted to commissioned officers, but look at the setup outside—it is no different in fact.

Is there any reason, aside from socialistic theorizing, why rank should *not* have its privileges, in the service as it has everywhere else? An ascending scale of privilege is a constant challenge to ambition and a reward for en-

An ex-WR lets go at the cavillers who raise the cry of "caste system"

deavor. I doubt if I would have bucked as hard for a staff rating if it had not been for the open-gate liberty that went with it. Of course, after I got the rate and the open-gate liberty, I found there was more to rank than privilege, even in my humble stratum: I discovered that I had to do various unpleasant things that I was not considered important enough to do before, like DI-ing a platoon and counting stock in dusty warehouses with the PX Council. I ran into responsibility, the other side of the coin. And I would suggest that the brethren who would strip the privileges from rank are overlooking that little angle. They are anxious enough to divide up distinctions and advantages, but I have not heard them advocating dividing *down* responsibility.

NAPOLEON tried the idea of applying the Revolution's "Liberty, Equality, Fraternity" to his armies for a time. He insisted at first that his officers live under exactly equal conditions as his enlisted men. Their only distinction was to be their authority—and their responsibility. It didn't work. The officers could not do their jobs, and nobody was particularly anxious to be an officer and assume the responsibility involved with nothing to show for it. The Russians tried the same thing in modern times. It didn't work. Napoleon issued an edict, in which he granted his officers permission to have tents, and lights in their tents after taps, and tables and chairs and furnishings, not because they were better or tenderer men than those they commanded, but in order for them to work harder and for longer hours on those problems with which they were entrusted. Fundamental in the military system, and taught as such in the service academies, is the tenet that rank and authority are merely *appendages to responsibility*. More specifically, that military men are charged with varying responsibilities—that their rank is given them as a *measure of responsibility*, with their authority as a *means of executing responsibility*, and their privileges as *a reward for assuming responsibility*. This is logical, sound, and eminently efficient as a system. There is absolutely nothing un-American about it. The only catch is that any system involving human beings is subject to the human variant. Individual officers, whose education in leadership has been faulty and whose personal qualities were perhaps obscured by their paper qualifications at the time of their commissioning, have abused the principles of the system. Some enlisted personnel have come up against such abuses and have a perfectly legitimate gripe against them. But the gripe should be against the abuse, and not against the system. I do not believe—with every American quality in me, I refuse to believe—that the cure for abuse of advantages consists in the abolition of all advantage. It is definitely *not* democratic to create a class boundary forever separating one group of people from another, but neither is it democratic to reduce the possible achievements and rewards of the individual to the level of the lowest common denominator in the group. It *is* democratic to create a better way of life a little higher up, to which those who qualify by fitness and ambition may have access and to which they are encouraged to aspire. You can call this a caste system if you want to. It is also an incentive system, and as American as ham and eggs.

As for the arguments that the rewards of military service are not sufficiently attractive, they are based on pure misconception, since they ignore the fact that the military profession *is* a profession. It is *not* a business conducted for gain. It has never been the intention of the military system that the profession of arms should be rewarded in the sense that contributions to successful commercial enterprises are rewarded. In return for an almost monastic singleness of purpose and interest, the professional soldier receives enough in cash and kind to maintain himself decently in the scale demanded by his rank—and that is about all. This minimum may be more or less, in amount, depending on the economic conditions of the age in which he serves. It has never been, and will never be equal to that with which lesser services are recompensed in the commercial world where money is the motive and reward of effort. And that too is logical and basically sound as a system. Relieved of worry about the necessities of life, and deprived of the temptations to venality that possible financial killings might offer, the professional soldier is able to devote himself entirely to his duty. No man should undertake the military career with any hope of satisfaction who has not in a definite sense a clear vocation transcending the money motive and who has in any sense at all an idea that the financial yardstick is the only measure of success. Selflessness is a required characteristic of the "service man."

There has been a large amount of sneering at the professional military career as the refuge of escapists and potential failures. Some of this belittlement stems from the mistaken notion, discussed above, that the services ever intended to, or logically should, compete with private business from the standpoint of financial inducement. Quite a lot of it is aired by disgruntled veterans of wartime service who felt their talents and abilities received insufficient recognition in that service. Some of them may in truth have had much to offer that was not used. But I know for a fact, from personal observation, that the demand for ability and the recognition

of talent were as prevalent in service as anywhere in the business world. If some worthy individuals felt themselves overlooked, the fault more probably lay with them than with the system: a light hidden under a bushel is an extremely difficult light to discover in the exigencies of war when patient probing is precluded. The man or woman who went at the initial minor tasks with enthusiasm and obvious mastery, and who was alert to see what needed doing and to do it without being told—they went up. They went up *fast*. Even at the very end of the war, when there were more men than there were jobs, there were less good men than there were opportunities. True, the goldbrick and the lazy man can exist more comfortably in the service than he can when pitted against the winner-take-all system of private industry. There are plenty of grubby, undemanding jobs at which he can still earn his keep without straining himself, if he is contented to stop where he started. He maintains his bare minimum for existence; competition of better men won't take it from him as it would outside. But the old saw about not keeping a good man down is as good in the service as anywhere.

THERE has been much scandalized uproar over the attitude taken by the services toward the publication of articles and letters from enlisted men criticizing the high command. I'm not taking sides as to the justice of the arguments. But I am constrained, again on the basis of 15 years of private employment, to wonder at the forebearance of the authorities who took the disciplinary actions so condemned. My organization publishes a house organ each month and solicits contributions from employees and industry. Should I attempt to criticize the management or the policy of the industry by letter or article, not only would the material not receive publication, but I am pretty sure I would be dismissed. Why all the commotion because the Brass Hats object to having themselves publicly castigated by juniors? I know of no business in the great, free civil world where the officers or directors would tolerate such public criticism of themselves or their management of the organization from men employed to carry out their policies. There is a little matter called "loyalty" that precludes biting the hand that feeds one, whether it is topped by a white or a khaki cuff.

Speaking as an American, as a civilian, and as a veteran, until I am offered a new system that consists of something more than mere ill-natured negation of the old, I prefer to entrust my future and that of my country to the men and the ways that have served us well in the past. Many citizens will agree with me. But there is a large segment of our population, both in and out of uniform, that is apt to accept anything as true if it is repeated often enough and loudly enough and with sufficient apparent confidence. For this reason, ill-considered criticism of the military system is dangerous from three standpoints:

In the first place, as has been the case after every war in our history, the country is tending to forget the magnificent record this reviled "system" hung up during the actual hostilities and to revert to its peacetime attitude toward anything military as a necessary evil. After that comes neglect, oblivion, and Bataan. There are forces abroad in the world today that cannot be placated by good intentions. Weakness in our armed strength, division in our midst is what they want—what they must have if they are to survive in darkness and emerge again—to try again.

In the second place, this tendency will, if it is allowed to flourish unchecked, be a dangerous threat to the sense of unity and enthusiasm that other organizations call "esprit de corps" but which the Marine Corps has always regarded as just part of being a marine. That sense of unity and enthusiasm is based on mutual respect for tradition, mutual confidence and mutual admiration. Anything that threatens it threatens the Marine Corps with all that means to every marine.

And in the third, and perhaps most immediately visible instance, it represents a serious barrier to recruiting. The future strength and importance of the Marine Corps particularly will be determined largely by the success with which it manages to attract young men of intelligence and ability to the military career through voluntary enlistments. This will be impossible if they are fed, without antidote, the doctrine of the disgruntled that such a career would actually place them in a sort of medieval bondage, as despicable Have-Nots at the mercy of autocratic Haves.

It is the duty of every marine and ex-marine, officer and enlisted man, to see to it that both publicly and privately, in words and in actions, he refutes all efforts to undermine his loyalty. To this end, let the officer see to it that he is competent and *humble* in the face of his responsibilities: no man *world* respect has to demand it. And let the enlisted man remember that while he is sworn to respect for his lawfully constituted superiors, he is barred in no way from achievement. Neither can function effectively without the other; neither can further the traditions of the Corps without the loyalty and the support of the other. Let each deserve the other, and both will deserve the honorable title of "Marine." And make no mistake: it *is* an honorable title—the critics be damned! **END**

The Rifle Matches Are Back

After four years of war, the Marine Corps' top rifle and pistol shots again gather for annual competitions

By PFC Robert L. Klaus

ON 28 APRIL 1909 the Navy Department issued a letter of instruction providing for the compulsory holding of post, interpost, division and Marine Corps competitions with the service rifle. This letter was the first step in the road to building the Marine Corps into one of the finest groups of shooters in the world.

The first rifle matches were held in the spring of 1909. In the thirty-seven years that have passed since that time, great names have studded the rosters of the Marine Corps shooters . . . Thomas Holcomb . . . E. V. Seeser . . . Tom Jones . . . Mark Billings . . . Edwin Hamilton . . . they have set their sights at six o'clock and blazed away to new shooting records.

In 1940 the last Marine Corps Matches with the Springfield '03 rifle were fired at Quantico, Va. PFC Mark Billings won the coveted Lauchheimer Trophy for high individual with a rifle score of 548 and a pistol total of 554, giving him an 1102 aggregate.

Four war years passed before the cream of the Leatherneck sharpshooters could get together and compare rifle and pistol skill. These four years were occupied with thousands of old salts and younger bloods squeezing them off at something more substantial than an "A" target. That was the real test of Marine marksmanship, and, according to reports, it has paid off.

The outstanding innovation of this year's match firing was the M1 rifle, which of course, has replaced the '03 as the basic infantry weapon. Many opinions concerning this change could be heard along the firing line at the matches.

LtCol H. P. "Jim" Crowe, famed marine shooter and sportsman, was in favor of switching to the '03 for the match. Other shooters declared that the M1 should be used since it is now the official shoulder weapon for marines.

Another change in the firing of these matches was in the introduction of a new record course. The course for the '03 was: 200 yards, slow fire, offhand; 200 yards, rapid fire, kneeling or sitting; 300 yards, rapid fire, prone from standing; 600 yards, slow fire, prone; 1000 yards, slow fire, prone. Possible for this course was 300.

The new course for match firing has two changes. In the 200 yards rapid fire, it is now compulsory for the shooter to assume the sitting position, where previously there was a choice between sitting and kneeling. The other change is the omission of the firing from the 1000-yard line. Possible for the new course: 300.

On this, too, opinion varied along the firing line. Some were in favor of going back to at least 800 yards. Other shooters argued that this was not feasible with the present ammunition. Some wanted to retain the kneeling position. However, no other changes were made this year and the course just outlined was used.

Preliminaries for the big shoot began as early as 25 February when Pacific and China marines blackened their sights and stepped onto the line for their divisional match. These competitions lasted for six days.

Top scorers of the Pacific Division Rifle Competition:

1.	Dempsey, John W.	PFC	555	Gold
2.	Jones, John G.	Sgt	554	D/Mks
3.	Miller, Virgil F.	1stSgt	554	Gold
4.	Schlegel, Abraham W.	Sgt	552	Gold
5.	Gilbeau, Charles R.	WO	550	D/Mks
6.	Horn, Herbert B.	WO	549	Gold
7.	Anderson, Gail E.	WO	548	Gold
8.	Muckleroy, Reginald	1stSgt	548	Gold
9.	Clark, Norman R.	CWO	545	Gold
10.	Fulton, Columbus B.	Sgt	545	Gold
11.	Lee, Benjamin G.	1stLt	544	Gold
12.	Reid, Daniel G.	2ndLt	544	Gold
13.	Orr, Emmett W.	CWO	543	D/Mks
14.	Burks, Robert D.	PlSgt	543	Gold
15.	Hoyt, William, Jr.	1stLt	542	Gold
16.	Weir, Michael B.	2ndLt	542	Gold
17.	Corbin, John W., Jr.	PFC	541	Gold
18.	Lawrence, Aldwin B.	CWO	541	D/Mks
19.	VanOster, Gerald R.	PFC	540	Gold

CWO Edward V. Seeser, veteran shooter and winner of the "President's Hundred" at Camp Perry, 1938, took first place in the Pacific Division Pistol Match.

Final top scores of the Pacific Division Pistol competition:

1.	Seeser, Edward V.	CWO	532	D/Mks
2.	Moser, Robert D.	LtCol	526	Gold
3.	Boyle, Vincent D.	2ndLt	522	D/Mks
4.	Jones, John G.	Sgt	520	D/Mks
5.	Priseler, Leo F.	Cpl	517	Gold
6.	Walsh, Walter R.	Maj	508	D/Mks
7.	Schlegel, Abraham W.	Sgt	504	Gold

High-scoring Maj Walter R. Walsh's new record took the pistol match.

One month after the completion of the Pacific Division matches, the Western Division match began. GySgt Joe K. Marshall from the Rifle Range Detachment, MCB, San Diego, fired a blistering 556, tops in any division, to take first place and the top gold medal. Later at the Marine Corps Matches, Marshall placed third and received the first gold medal.

Gold medal winners of the Western Division Rifle Matches:

1.	Marshall, Joe K.	GySgt	556	Gold
2.	Fields, Leonard A.	GySgt	551	Gold
3.	Little, Jason	GySgt	550	Gold

Only Distinguished Marksman to place in this match was CWO Rames E. DeLaHunt, a match shooter of long-standing, who placed sixth with a 548 total.

The Western Division Pistol Competition was fired the day after the completion of the rifle match, 25 April. Results of the pistol match:

1.	Bergman, Ferdinand J.	WO	540	D/Mks
2.	Belovich, Marko G.	MGySgt	532	D/Mks
3.	Little, Jason	GySgt	530	Gold

Four other Distinguished Marksmen took the next four places: 1stLt Victor F. Brown—526; LtCol Edwin L. Hamilton—523; Capt Rames O. DeLaHunt—518; and WO Armon J. Sealey—518.

Consistency keynoted MGySgt Theodore Wade's shooting for the Laucheimer.

A great many shooters from the Pacific Division and the Western Division shot in the San Diego Team Trophy Match. This trophy, presented by the City of San Diego to cement the friendship between the citizens of that city and the Marines, was first placed in competition in 1921.

Eleven teams were represented in this match with the trophy going to the Service Command, FMF, team which fired a 1102 out of a possible 1200. Results of this match were:

1.	Service Command, FMF	1102
2.	Camp Pendleton, Marine Training and Replacement Command	1099
3.	Marine Corps Base, San Diego	1093
4.	Aircraft, FMF, Pacific	1092
5.	Mare Island, Calif., MB, US NavShipYd	1088
6.	Force Troops, FMF, Pacific	1088
7.	2nd Marine Division	1088
8.	1st Marine Division	1085
9.	Bremerton, Wash., MB, US NavShipYd	1078
10.	Marine Garrison Forces, 14th NDis	1061
11.	6th Marine Division	1058

Results of the Southeastern Rifle Competition:

1.	Floyd, Claude L., Jr.	Capt	545	D/Mks
2.	Dickerson, Howard B., Jr.	PlSgt	533	Gold

Fired at the same time as the rifle competitions, the pistol matches also proved to be low, due to the difficult conditions on the second day. Final top scores of these matches:

1.	Perna, Vito	1stSgt	515	D/Mks
2.	Barrett, Harold A.	MGySgt	515	Gold

The last matches to be fired before the beginning of the Marine Corps Matches proper, were the Eastern Division Rifle and Pistol competitions held at Quantico, Va., from 20 to 23 May. Firing conditions were good, but the scores were not as high as those of the Western and Pacific Divisions, though higher than those of the Southeastern.

High scores for the match:

1.	Rice, Roy F.	GySgt	552	Gold
2.	O'Connor, Eugene A.	MGySgt	552	Gold
3.	Kross, George	1stLt	550	D/Mks
4.	Propst, Carl L.	1stSgt	547	D/Mks
5.	Dynes, William J.	PlSgt	540	Gold
6.	Thomas, Adam	CWO	540	Gold
7.	Sellers, Leslie E.	SSgt	540	Gold

Two top spots in the Eastern Division Pistol Match went to Distinguished Marksmen, with LtCol Mercade A. Cramer setting a tough pace with his 547 total. LtCol Cramer's second string was six points under the record for the course.

Top scores for the Eastern Pistol competition:

1.	Cramer, Mercade A.	LtCol	547	D/Mks
2.	Brown, Charles A.	CWO	535	D/Mks
3.	Butcher, Fred H., Jr.	GySgt	532	1st Gold
4.	McIntyre, Robert C.	1stLt	532	Gold
5.	Hawes, Percy W.	GySgt	529	D/Mks
6.	Becker, Raymond R.	GySgt	528	Gold

Completion of these matches marked the end of the divisional matches. Next on the list were

Newcomer to the Marine Corps Match, MGySgt Joe K. Marshall fired tops in his division, took third place and first gold medal in the big shoot.

the Marine Corps Rifle and Pistol Matches, the Laucheimer Trophy, and the Elliott and Wirgman Trophies.

The Laucheimer Trophy, first presented in 1921, is awarded annually to the individual marine who has the highest aggregate score on both the rifle and pistol.

First presented in 1910, the Elliott Trophy is awarded annually to the highest four-man team firing the Elliott Trophy Course, which consists of shooting the regular course once. Marine Barracks, Washington, D. C., won this trophy the first year it was presented. In 1938, the high-flying Quantico team coached by PlSgt, now 1stLt Kenneth E. Harker, set a record by firing 1155 out of a possible 1200 to take the Elliott.

Marine Barracks, Washington, D. C., is the only team ever to take this trophy and the Harold F. Wirgman Trophy in one year. The latter trophy is presented annually to the highest scoring team from a post with less than 300 personnel.

At 0700, Tuesday 28 May, the first stage of the Marine Corps Rifle Competition got under way, with 153 entrants. Competition in this match was very strong.

Capt Claude L. Floyd, Parris Island, set a tough pace on the first day. Calmly and coolly he plunked them into the black, dropping a total of only 14 points out of the entire 300. His score for the day—a rousing 286.

Runner-up was WO Charles R. Gilbeau who fired a 283. Third and fourth places, for the first stage went to GySgt Everett L. Hesson and 1stLt Harry E. Leland with 281 and 280 respectively.

The big question on the second day was: could Capt Floyd keep up the scorching pace of yesterday? Weather conditions for the second day were bad. The sun was shining very brightly, causing "a small ball of fuzz to set up on top of your front sight" as one shooter put it.

Capt Floyd broke and his score came tumbling down to a 271, giving him a 557 for the total. GySgt Theodore F. Wade, slow and easy, dropped one point from his previous score of 279 to a 278, giving him a total of 557.

Top man in the Marine Corps Rifle Matches was GySgt Wade. The reason for his taking first place over Capt Floyd is in the match rules: "In case of rifle ties, the individual with the highest score at the longest range shall be declared the winner."

Final standings in the Marine Corps Rifle Competition:

1.	Wade, T. F.	GySgt	279	278	557	D/Mks
2.	Floyd, C. L.	Capt	286	271	557	D/Mks
3.	Marshall, J. K.	GySgt	276	278	554	Gold
4.	Leland, H. E., Jr.	1stLt	280	274	554	Score only
5.	Hesson, E. L.	GySgt	281	271	552	Gold
6.	Gilbeau, C. R.	WO	283	269	552	D/Mks
7.	West, J. P.	GySgt	273	278	551	Gold
8.	Orr, E. W.	CWO	275	274	549	D/Mks
9.	O'Connor, E. A.	MGySgt	275	273	548	D/Mks
10.	Sheckler, H. A.	GySgt	269	278	547	1st Silver
11.	Barrett, H. A.	MGySgt	271	275	546	D/Mks Score only
12.	Dickerson, H. B.	PlSgt	269	276	545	2nd Silver
13.	Burt, E. E.	1stLt	275	270	545	Silver
14.	Pierson, E. J.	1stLt	272	272	544	Silver
15.	Brown, V. F.	1stLt	268	275	543	D/Mks
16.	Borth, H. C.	Capt	271	272	543	Silver
17.	Sellers, L. E.	SSgt	265	277	542	3rd Silver
18.	Kross, G.	1stLt	273	269	542	D/Mks
19.	Rice, R. F.	GySgt	275	267	542	4th

20.	Nihart, F. B.	Maj	269	272	541	Score only
21.	Huppert, F. W.	CWO	270	271	541	Silver
22.	Hawes, P. W.	GySgt	272	269	541	5th Silver
23.	Jacisin, W. J.	MGySgt	268	272	540	6th Silver
24.	Jones, John G.	Sgt	268	272	540	D/Mks

The following men received bronze medals: (25) PFC Robert V. Myers, (26) PFC Donald W. Archambeau, (27) CWO Avant M. Brannock, (28) SgtMaj Angelo A. Steriti, (29) 1stSgt Reginald Muckleroy, (30) GySgt Chalmers K. Land, (31) Sgt Columbus B. Fulton, (32) GySgt Oscar T. Bowen, (33) WO Herbert B. Horn—D/Mks—no medal, (34) CWO Aldwin B. Lawrence—D/Mks—no medal, (35) 2nd Lt Donald E. Keown, (36) PFC Donald D. Woodrum, (37) Sgt Charles M. Brostrom, and (38) T/Sgt Richard Sourkasian.

Maj Walter R. Walsh, stationed at Quantico, but on temporary duty at Marine Barracks, Washington, D. C., led the field in the Marine Corps Pistol Competition with a record-breaking 285 in the first stage and a 268 in the second, giving him a total of 553. This 285 is a new course record in Marine Corps competition over a military course. The old record of 282 was formerly held by Cpl, now Capt Harry Reeves, who set that mark on 18 May 1937 at Quantico, Va.

Maj Walsh's 553 was just two points under the record of 555 set by Capt Reeves the same day he fired the 282. Maj Walsh has been in the Marine Corps competitions for years, but this was his first Marine Corps match. A left-handed shooter, he is distinguished with the pistol, holding two gold and one silver medal. He was the only man to fire on both the All-American and the International Rifle and Pistol teams, having fired on the All-American five times.

Second place in this competition went to another distinguished pistol shot, LtCol Noah J. Rodeheffer who fired a 545. First gold medal was given to GySgt Walter L. Devine who fired a 537.

Results of the Marine Corps Pistol Competition:

1.	Walsh, W. R.	Maj	285	266	553	D/Mks
2.	Rodeheffer, N. J.	LtCol	279	266	545	D/Mks
3.	Devine, W. L.	GySgt	274	263	537	Gold
4.	Belovich, M. G.	MGySgt	273	263	536	D/Mks
5.	McIntyre, R. C.	1stLt	270	264	534	Gold
6.	Fletcher, W. E.	SgtMaj	271	263	534	D/Mks
7.	Perna, V.	1stSgt	269	263	532	D/Mks
8.	Wade, T. F.	GySgt	266	265	531	Gold
9.	Brown, C. A.	CWO	274	257	531	D/Mks
10.	Cramer, M. A.	LtCol	258	272	530	D/Mks
11.	Johnson, J. E.	Cpl	259	270	529	Silver
12.	Hawes, P. W.	GySgt	267	260	527	D/Mks
13.	Thorstad, P. R.	GySgt	262	264	526	Silver
14.	Butcher, F. "H", Jr.	GySgt	268	257	525	Silver

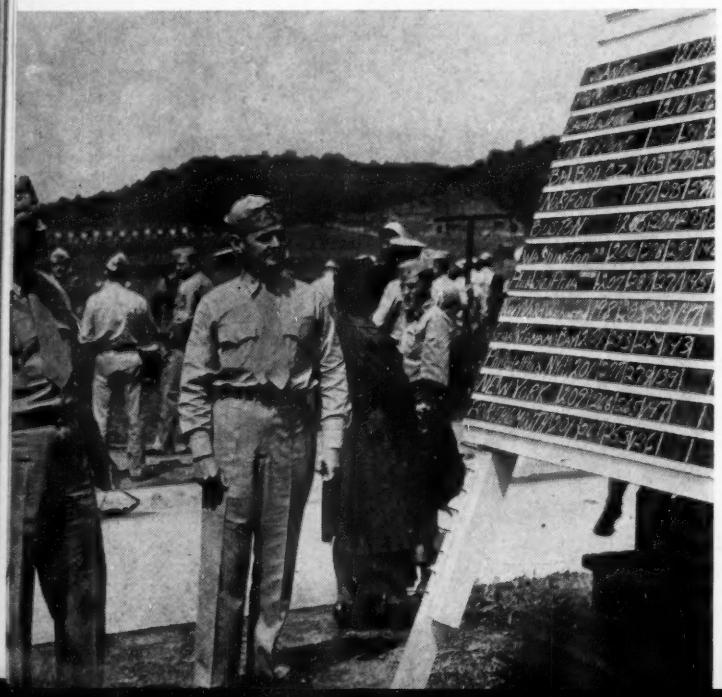
The following men, arranged according to score, were awarded bronze medals: (15) Maj Franklin B. Nihart, (16) 1stLt Victor F. Brown—D/Mks—no medal, (17) Sgt John Jones—D/Mks—no medal, (18) MGySgt Ralph H. Hagan, score only, (19) Cpl Lee F. Priseler, (20) 1stSgt Carl L. Propst—D/Mks—no medal, (21) GySgt Raymond R. Becker, (22) LtCol Robert D. Moser, (23) CWO Norman R. Clark—D/Mks—no medal, (24) WO Gail E. Anderson, (25) PlSgt James H. Hughes, (26) PFC Charles P. Wetzel, (27) Capt Claude L. Floyd—score only, (28) GySgt Jason Little.

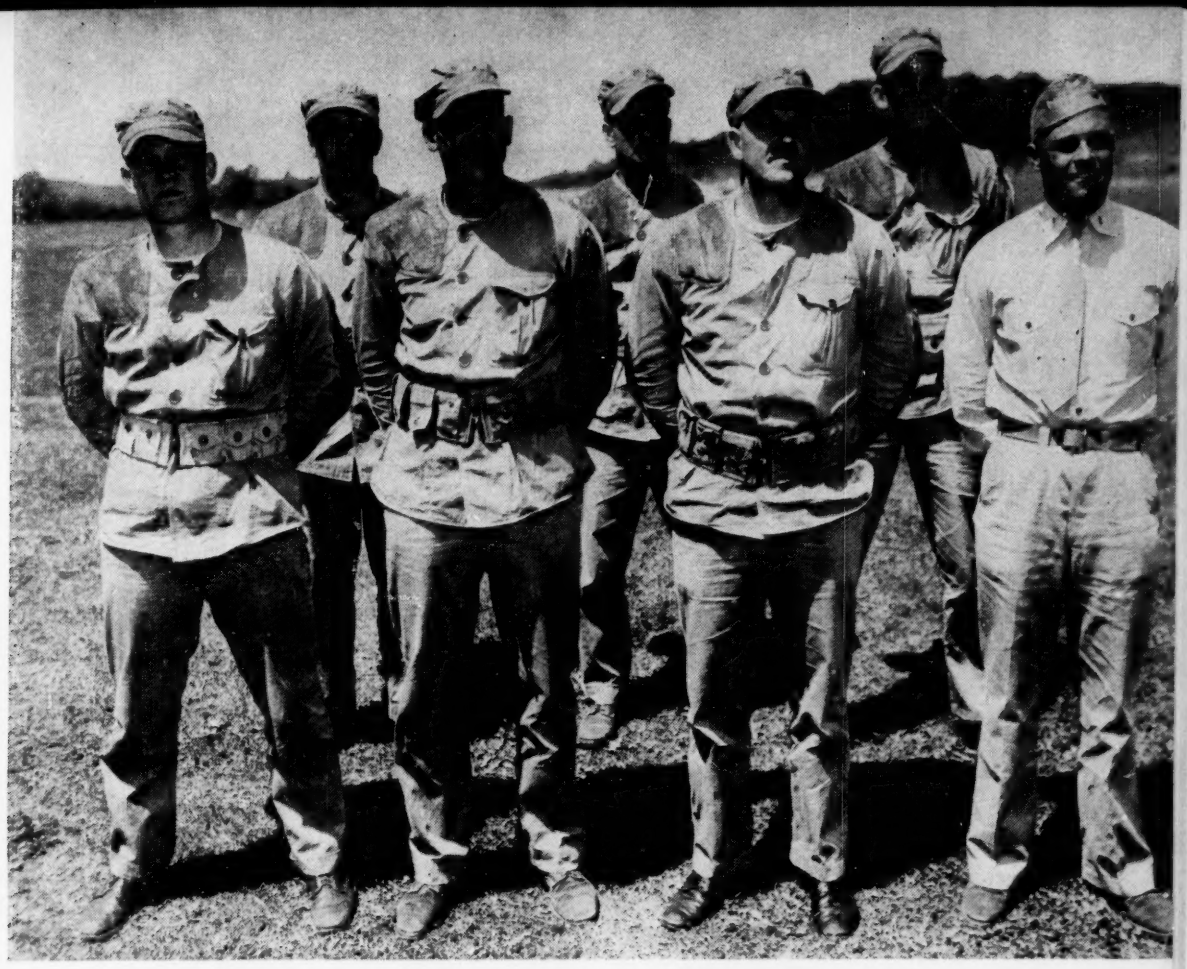
When the final aggregates were counted, the three top men in the Laucheimer Thophy race were announced. First place went to quiet, unassuming GySgt Theodore F. Wade, formerly of Joplin, Missouri, now settled in Salem, Oregon. Sgt Wade, who is stationed at Camp Pendleton, has 17 years in the Corps. His score was 557 rifle and 531 pistol for a total of 1088.

The winning of the Laucheimer Trophy marked his first match victory, though he became a distinguished shot in 1940. Asked his opinion of the M1 as compared to the '03, Sgt Wade said: "It's a good rifle . . . but it has a few kinks to be ironed out. I always did prefer the '03 as a target rifle."

Second place went to LtCol Noah J. Rodeheffer who fired a 531-rifle, 545-

GenComdt A. A. Vandegrift and BrigGen E. C. Cumming look at the scoreboard during the Elliott Trophy Team Match.





Seven highest men in the Marine Corps Rifle match (l. to r., front row) Leland, Hesson, Floyd, Gilbeau, (second row) winner Wade, Marshall, West.

pistol score to attain an aggregate of 1076, just 12 points short of GySgt Wade. Third place was achieved by GySgt Percy W. Hawes, who fired a 541 with the rifle, 527 pistol to reach 1068, 20 points shy of the winning number.

There remained only one more big match to be fired—the Elliott Trophy Rifle Team Match. The team coaches got busy selecting the best firers from their teams. It was compulsory to have at least one officer and one enlisted man on each four-man team.

On Tuesday, 4 June, 14 teams were on hand to shoot it out for the Elliott Trophy. It rained all the previous night and up until about 0900, but the red flag flew over the range.

At the beginning Quantico led the field. With Distinguished Marksman 1stLt George Kross, Gold Medal Winners GySgt Roy F. Rice and MGySgt Eugene A. O'Connor, and Silver Medal winner 1stLt Robert C. McIntyre, it looked like a very strong team. Its outstanding rival was the Parris Island quartet which was, with Distinguished Marksmen Capt Claude L. Floyd, Jr., and GySgt Harold A. Barrett, Gold Medalist PlSgt Howard Dickerson and 1stSgt Madison E. Humphrey, another good team.

Slowly, but surely, Parris Island pulled up on the Quantico team. Six points ahead going back to 600 yards, Quantico really had to make every shot count. GySgt Rice lost a few points while his teammate MGySgt O'Connor dropped only two for 38. On the adjoining target, the two Parris Island men picked up a couple more points. Lt George Kross fired steadily and pulled his score up while Lt McIntyre dropped. Capt Floyd hit a trey on his first shot, came up to four and finished with a five.

A crowd of spectators gathered around the Parris Island team after the Quantico team had finished and their score—1096—had been totalled. GenComdt A. A. Vandegrift, MajGen Clifton B. Cates, and others who were on hand, eyed closely the Parris Island score as each shot was posted. Capt Floyd squeezed off his last shot—a five.

A hush fell as the score was being added. Then as it went up on the board a cheer arose. Parris Island—1096. They had caught up to Quantico. Then, when the figures for the 600-yard line were compared, it could be seen that Parris Island had a 146 against the Quantico team's 140. Once again it was profitable to have

Parris Island's team took a close victory over the Quantico four to win the coveted Elliott Trophy. L to r: Barrett, Floyd, Dickerson, and Humphrey.

a good score at long distance.

The final standings for the Elliott Trophy were:

1.	Parris Island	1096
2.	Quantico	1096
3.	Camp Lejeune	1086
4.	Cherry Point	1069
5.	Balboa, Canal Zone	1060
6.	Norfolk, NOB	1055 (declared winners of the Wirgman Trophy)
7.	Philadelphia DOS	1050
8.	Boston	1044
9.	Washington, Marine Barracks	1043
10.	Washington Navy Yard	1043
11.	Philadelphia Navy Yard	1042
12.	Guantanamo Bay	1037
13.	New York	1032
14.	Portsmouth, NOB	987

At 1100, 4 June, GenComdt Vandegrift, in a brief ceremony in the Rifle Range Theater, awarded the trophies and medals.

In making the presentations, he said:

"We know the war is over for we are back to another Marine tradition—the rifle matches . . . the rifle in this war was overshadowed by guided missiles and atomic bombs . . . but I can assure you that it was the man with the rifle, the flamethrower, or grenades, who, after the bombs had dropped, rooted the miserable Japs and Germans out of their hiding places." END

VACANCIES exist on the Marine Corps GAZETTE *in the editorial, art, and business departments. Applications are desired from both officers and enlisted personnel. Editorial applicants should be conversant with feature writing, manuscript preparation, copyreading, and production. Art requirements are a knowledge of illustration, layout, and typography. Business applicants should understand circulation, advertising, and bookkeeping procedure. Applications should be addressed to the Editor and should include a resume of publications experience as well as formal education. Applications should also include present station and duties, eligibility for discharge, and whether regular or reserve.*

Amphibious Tactics

Continued from page 30

approached to within two to three miles of th shore and five gunboats and two steamers took positions in a line parallel to the beach. The landing force was disembarked into 65 small landing craft, which then assembled under the protection of the larger vessels and deployed in line for the ship-to-shore movement. The landing boats were rowed to the beach at top speed by sailors, and units of the Division landed simultaneously without opposition and withou casualty. 10,000 troops were landed betwee sunset and ten p.m. in the small boats, which made repeated trips from the transports to the beach. Vera Cruz was isolated and the seige was undertaken, which, with support from naval guns landed on the beach and on vessels at sea, succeeded in reducing the city and bringing about its capture.

On the 21st of March, Commodore Perry relieved Commodore Conner as Squadron commander, and following the success at Vera Cruz, further operations were undertaken against the Gulf ports. Early in April the gunboat *Scourge* independently forced the surrender of Alvorado, which left Tuxpan as the last port of importance held by the Mexicans. Perry, who had a greater belief in the value of the landing force than Conner, formed a special landing force brigade, consisting of 1489 officers and men and four artillery pieces, under the command of Capt S.N. Breese, USN. The brigade was given special training and drills, and on 18 April the *Mississippi*, with schooners and gunboats in tow, attacked Tuxpan. The steamers towed the gunboats in accordance with the established procedure and the gunboats returned the fire of shore batteries in the approach. The landing force was disembarked, and attacking from the flanks and rear seized the port. On 15 May, a force of 15 ships launched a second attack in the Tabasco against San Juan Bautista which ended in the seizure of the city by the brigade.

Commodore Sloat's smaller Pacific Squadron, operating independently without support or communication with either Washington or the Home Squadron in the Gulf, effected the capture of California and the blockade of Lower California ports. A special landing force of sailors and marines, which also contained California volunteers, waged a successful and extensive land campaign ashore in California employing the support and mobility provided by the vessels of the Squadron. However, planned ship-to-shore operations comparable to those in the Gulf were not necessary. Monterey was seized on 7 July 1846 by a landing force of 186 sailors and 85 marines; San Francisco (then called Yerba Buena) was taken on 9 July; San Diego on 29 July; Santa Barbara on 4 August; and San Pedro on 7 August. The San Pedro landings were followed by an overland movement and the capture of Los Angeles. These initial landings were unopposed and required very limited forces. However, once taken, the coastal positions were insecurely held by the Americans, and an extended land campaign was required before Los Angeles and San Diego were finally and securely in our possession.

After the army arrived with reinforcements in 1847, attention was turned to strengthening the blockade against the ports of Lower California. Commodore Stockton had relieved Commodore Sloat on 15 July and had been responsible for the conduct of virtually the entire campaign in California. Commodore Shubrick, a later arrival, conducted two landing operations of note in the autumn of 1847 directed at enforcing the blockade to the south. On 17 October heavy artillery was landed on two small islands at Guayamas, and was coordinated with the bombardment of naval vessels to cover the landing of troops against the town. The bombardment was successful in forcing the enemy to evacuate before troops landed. On 11 November a landing force of 600 sailors and marines, equipped with five field pieces, was boated in three waves and dispatched under a naval bombardment, and the coordinated approach of the landing force, was so impressive that the enemy offered no resistance to this landing.

There was a clear appreciation in the prosecution of the Mexican War of the strategic value of sea supremacy and of the tactical relationship of military and naval operations. Successful tactics were developed by the Home Squadron for operations required in the particular theater, under the existing weather and terrain conditions, and against the existing defences. The mobility and fire power inherent in our naval superiority was so well exercised as to preclude many of the problems of modern landing operations. No assault landings were necessary. However, an elementary landing force organization and a technique for ship-to-shore movement, coordinated with naval bombardment, were developed. These tactics proved successful in both a large scale joint operation and in the limited naval landings against coastal positions.

During the period between the Mexican and Civil Wars, the Navy engaged in world-wide activity, which served to promote national interest and trade. It was employed largely as an instrument of diplomacy, and there was rarely a need to commit its force. There were no instances of landing operations comparable to those of the Mexican campaigns.

In November 1856, the East India Squadron conducted a series of landing operations in

China which followed the pattern of the Navy's peacetime operations. A naval landing force had been sent by Commodore James Armstrong to Canton to protect American life and property. It was soon withdrawn, however, in accordance with the desires of the Chinese authorities. During the withdrawal, the vessel carrying the landing party was fired on by one of the Chinese river forts. On 16 November, the ships *Portsmouth* and *Levant* undertook a bombardment of the forts and succeeded in silencing the shore batteries. However, with indications of renewed activities by the Chinese in the forts, Comdr A.H. Foote, four days later, employed a landing force of 300 men, consisting for the most part of marines, to assault one of the forts. When it was seized, 53 of its guns were turned on a second fort, whose batteries were thus silenced. After repulsing a counterattacking force of 3000 Chinese, the landing force assaulted another fort on the morning of 21 November, and again turned 41 captured guns against a fourth enemy position. During the afternoon, a third fort was taken in an assault landing against the island on which it was located. The following morning the last fort was captured, and the operation was concluded with 176 shore pieces of eight-inch calibre or more captured. The Chinese casualties totaled 250; while the Americans lost only 29.

Military operations were primarily responsible for the defeat of the Confederacy in the Civil War, but naval power made an important contribution to that victory. The Federal Navy held command of the sea and exercised it to:

1. Blockade the Confederate coastline and attack coastal and river ports in furtherance of the blockade and in support of the Army ashore;
2. Cooperate with the Army in logistics and fire support;
3. Protect lines of communication;
4. Prevent intervention by foreign powers on the side of the South.

The small Confederate Navy was, on the other hand, and in spite of very limited capabilities, skillful in devising effective techniques for harassing the Federal Navy. No advances were made in the amphibious tactics developed in the Mexican War, but there were significant and influential developments in closely related fields. The degree of cooperation achieved between the Army and Navy was greater than any that had existed before. The benefits of such combined actions were especially well appreciated by such military commanders as Gen Grant, and such naval officers as Capt Farragut and RearAdm D. D. Porter. Even more significant was the capability and common practice of employing ships to attack strong shore installations. The effectiveness of naval bombardment resulted in the seizure of many important coastal forts and cities. Army forces were frequently landed to exploit the effect of naval gunfire, but such landing operations were not carried out in the face of enemy resistance.

The increased effect of naval gunfire was due to several factors. Naval vessels achieved a higher degree of mobility, navigability, and accuracy in gunnery with the advent of steam. Secondly, the new steamers were equipped with armor. Finally, there were important advances in ordnance. The standard naval gun during the war was the fifteen-inch, smooth bore cannon which fired either a 440-pound shot or a 330-pound explosive shell. Some of the newer vessels were armed with the more accurate rifled cannon, which, with their higher muzzle velocity, provided a more penetrating effect. Armored mortar boats and small gunboats were extensively employed particularly in river campaigns in support of military operations ashore. The South in its efforts to combat the blockade was responsible for the development of early submarines, mines, and electrical and mechanical torpedoes.

The capture of Hatteras Inlet, Roanoke Island, New Bern, Port Royal, Pensacola, New Orleans, and later Charleston, Savannah, and Wilmington, were either accomplished by the fire of naval vessels alone or were made possible by shore bombardment. The seizure of these important coastal positions relieved the Navy of the necessity for blockading them and at the same time provided bases for the fleet. With the loss at the beginning of the war of the Navy Yards at Pensacola, Charleston, and Norfolk, the seizure of such bases was essential for the further prosecution of the blockade. The operations of the mortar boats, gunboats, and larger vessels under Foote, Chase, Porter, and Farragut in the Mississippi was indispensible to the conduct of operations at Fort Henry, Fort Donelson, and Vicksburg and the long military campaign for the control of the west, which was finally won by Grant. The river vessels maintained lines of communication, transported the Army, and repeatedly provided the decisive measure of fire superiority necessary to the conduct of shore operations.

The operation for the capture of Port Royal in November 1861 is a good example of the effective employment of naval bombardment. A force of 50 vessels, including transports, were assembled under the command of Flag Officer S. F. DuPont. On 4 November, Comdr John Rodgers took the gunboats *Ottawa, Seneca, Curlew,* and *Pembina* across the bar, drove off three Confederate vessels and led the transports into the roadstead out of range of the Confederate shore batteries located at Bay Point and Hilton Head.

On the next day, a reconnaissance by light vessels drew fire from the forts. The landing

1847—an impressive landing force met no resistance at bombarded Mazatlan.

force of 13,000 troops under the command of Gen William T. Sherman had lost much of its special landing equipment en route. Therefore, the Navy undertook to attack the positions alone from the sea with its wooden ships. The main attack was executed on 7 November. A force consisting of the frigates *Wabash* and *Susquehanna,* the sloops *Mohican, Seminole* and *Pawnes,* the gunboats *Unadilla,* and *Ottawa,* and the sailing sloop *Vandalia* towed by the *Isaac Smith* made repeated runs in front of the fort, delivering heavy broadside bombardments. The first attack was made from 800 yards. A flanking squadron consisting of the gunboats *Bienville, Seneca, Curlew, Penguin,* and *Augusta* acted as a covering force in position between the main body and six Confederate gunboats. Other gunboats were used to enfilade the forts from both flanks.

The second run was conducted 600 yards from the shore positions, and after four and one-half hours of firing, the forts were abandoned. A Marine landing force occupied them until the Army arrived. The operation, which was won by a heavy and accurate column of fire power, succeeded in giving the Navy an important base, and the control of most of the coastal area between Charleston and Savannah.

The technique of bombarding well-defended shore positions, which was made possible largely as a result of the superiority of armor to armament, was perfected in operations such as this, and in the extensive activity of the Navy's vessels in the Mississippi. Cooperation between the Army and Navy in joint operations meant that the Navy provided strategic mobility and fire power and the Army provided tactical mobility ashore. There were no coordinated assault landings.

In the thirty-year period between the Civil and Spanish-American Wars there were the usual instances of minor landing operations conducted by the Navy, but again there was no operation of significant scale or tactical note. In 1871 the vessels *Monacacy* and *Palos,* part of the Asiatic Fleet under the command of RearAdm John Rogers, was designated to escort the United States Minister to China on a treaty mission to Korea. These ships were shelled by a Korean fort during the progress of the conferences. An apology was demanded by the fleet commander and, when no reply had been received in ten days, the fort was taken under fire by the two ships. On 10 June a mixed landing force numbering 650, which included 105 marines and was reinforced with seven light howitzers, was landed under Comdr Blake. After the fort had been reduced by bombardment from the *Monocacy* and *Palos,* it was assaulted by the landing force. The position was captured by the marines, who

repulsed a strong counterattack in the night, and subsequently captured four more forts in an operation typical of the landings which had been conducted by the Navy for three-quarters of a century.

It was not until the years immediately preceding the Spanish-American War and during that conflict at the end of the nineteenth century that anything resembling modern amphibious tactics began to take form. The necessary precedents had been established in the experience of the previous 125 years. In 1885 the Naval War College was established at Newport, Rhode Island, where an interest in auxiliary naval weapons and the tactics for their employment was developed and stimulated. The experience and difficulties encountered by the Navy in sustaining an effective blockade during the Mexican and Civil Wars had indicated the need for a special force under direct naval control to seize and hold advanced operating bases for the fleet. Hastily assembled detachments of marines from vessels and Navy Yards had provided the core for the formation of improvised landing forces in the past. It was therefore logical that the Marine Corps, which had wise experience afloat and ashore operating both with the Army and Navy, should be designated to meet this need.

The first large scale training in landing force tactics was initiated near the naval base at Key West, Florida, in May 1898. A Marine battalion of five rifle companies and a battery of three-inch artillery, under the command of LtCol R.W. Huntington and organized as a landing force, participated in intensive drills designed to perfect a technique for rapid ship-to-shore movement and land tactics. The benefits of this month-long training were realized in the attack and seizure of Guantanamo Bay. A battalion of 650 marines landed without opposition and seized an important base to support the fleet's blockading operations. As a result, Carvera's Spanish Fleet was contained in Santiago and ultimately destroyed when it attempted a sortie. On 7 July 1898, the *Marblehead* and the *Yankee* reconnoitered Guantanamo Harbor, which was reported to be defended by 6000 Spanish troops. One Spanish gunboat was in the harbor, and it was further defended by the old cannon of Fort Toro. On 10 July, a force of 60 men from the *Marblehead* and *Yankee* effected the first landing by American forces in Cuba. They made a reconnaissance ashore and when Col Huntington's battalion, embarked on the Marine transport *Panther*, arrived during the day, it was landed immediately. The operations ashore were supported by the gunfire of the Marblehead and *Dolphin*, and the bombardment was controlled on more than one occasion by observers ashore.

It is significant that an army force of 17,000 men under the command of Gen Shafter, which was embarked on thirty-two transports and convoyed by the American Fleet, failed to undertake an assault landing against Santiago. Adm Sampson, in command of naval forces which could provide overwhelming fire power against the weakly defended forts of the city, urged such a course, but erroneous intelligence from the War Department influenced the Army to conduct its landing at Daiquiri, twenty miles to the east. This operation, although unopposed, was notable for the lack of coordination. Naval gunfire, which was available in great volume, was not extensively employed, although for a considerable time the Army had no organic field artillery available. The transports remained a great distance from the shore during the debarkation necessitating trips of as much as twelve miles through heavy surf for the 52 small boats employed in the ship-to-shore movement. The beaches chosen for the landing were unsuitable for such operations. This failure to apply the lessons of the Civil War undoubtedly emphasized the need in the Navy for trained specialists in ship-to-shore operations. Dewey wrote of the Philippine campaign that he could have well employed 5000 marines to land at Manila and thereby have avoided the many international complications which characterized operations in the Philippines following his decisive naval victory.

At the turn of the century tactics were under study at the Naval War College for the employment of newly developed naval weapons. In 1900 a Marine officer was appointed a permanent member of the staff at the War College, and a special detachment of five officers and forty enlisted men were trained at the Naval Torpedo Squadron Station, Newport, in the use of torpedoes, mines, and signal communications, including telephone, telegraph, and searchlight. This detachment participated in maneuvers with the North Atlantic Fleet in the summer of 1901. A landing exercise was conducted at Nantucket Island in which a five-inch battery, two six-pounders, and two three-pounders were landed and emplaced for firing in twelve hours.

The special training at Newport continued in the winter of 1901-1902, and three officers and 100 enlisted men were trained for later employment with the Fleet in Caribbean maneuvers. In the summer of 1902, marines of the North Atlantic Fleet participated in a series of four landings at Martha's Vineyard. A battalion of four rifle companies and one artillery battery was formed the same summer and maintained for service with the North Atlantic Fleet. It was trained in field fortifications, hasty intrenchments, including the construction of gun emplacements, the transformation of guns and the construction of gun platforms and gun mounts, and the construction and operation of field telephone and telegraph lines. The unit was or-

ganized as an advanced base regiment and in the winter of 1902-1903 participated in the first of a long series of exercises at Culebra in the Virgin Islands, and engaged in the construction of gun emplacements for four and five-inch guns, erected magazines, and cleared roads. It should be noted that defensive tactics were emphasized in the training of this advance base regiment, and it was apparently contemplated that the unit would land on unoccupied and lightly defended beaches. During the next four years, training of marines with the Fleet lapsed with the advent of other tasks for the Corps. In 1906 a small battalion served for a brief period with the Fleet on the *Dixie* and *Yankee* prior to employment in Cuba.. A Marine Corps School was begun in that year at New London, Connecticut. However, interest in an advanced base force had not waned. In 1908 the marines were removed from all ships of the Navy. This action is an indication that at the time the most important mission of the Marine Corps was seen, in some quarters at least, as the seizure of advanced bases for the Fleet. The Commandant began that year a long campaign to obtain Marine transports for expeditionary use, pointing out the necessity for maintaining the tactical unity of landing forces. Marines returned aboard ships early in 1909. In 1910 the Advanced Base School was established at New London, Connecticut, and was attended by ten officers and fifty enlisted marines. A year later the School was moved to Philadelphia.

A provisional brigade, formed for advanced base training in 1911 and consisting of two regiments formed from shore stations with a third regiment formed from marines assigned to vessels of the Fleet attached, participated in spring maneuvers at Guantanamo. In 1912 further training took place in the Caribbean and two officers of the Marine Corps underwent aviation training at the Naval Academy at Annapolis, Md. It was contemplated that an aviation element would be of value to an advanced base organization.

The mission assigned by the Commandant of the Marine Corps in July 1912 to the Advanced Base School at Philadelphia indicates the nature of the activities conducted by that organization. It was in part as follows:

"1. To train the officers and men in the handling, installing, and using to the best advantage in action of such advanced base material as may be provided.

"2. To investigate and determine what material is needed for, and is best suited to, advanced base work. This includes number, caliber, and types of guns; quantities and kinds of ammunition; number and types of mines; types of gun platforms; types of magazines; automobile and torpedo defenses; water and land transportation; and in general the number and types of all the various appliances required to transport, install, and fight the materiel provided for the defense of advanced bases.

"3. Theoretical study by officers of such military and naval subjects as pertain to the selection, occupation, and attack and defense of advanced base positions, or to expeditionary service in general, including the services of communication, supply, and sanitation."

It is notable that offensive tactics were treated as "theoretical."

In 1914 the personnel and doctrine of this School were tested, both in the maneuvers in the Caribbean and in actual landings at Vera Cruz. In that year, the Commandant wrote in his annual report:

"I believe that advance base work is the most important duty for which marines can be trained. . .

"The maneuvers in Culebra last winter demonstrated beyond peradventure that in order to do successful work of this character a yearly appropriation is necessary in order that the proper material may be procured, and, after being procured, to keep it up to date and in proper condition. A modest appropriation only will be necessary for this purpose. . . .

"In connection with this reference to advance base it may be proper to state that an impression seems to prevail that advance base work is purely a Marine Corps matter. This is an error, as there can be no doubt but that advance base work is essentially a naval matter in which the entire service is most deeply interested, and while the execution of the work is placed in the hands of the Marine Corps, it is nevertheless necessary for successful results that it be given earnest cooperation by and coordination with the various branches of the naval service. It is hoped that every facility will be provided the Corps for the continuing of this work, and if so, steps should be taken not only to perfect the outfit but also to devote as much time as possible to the training of the men in this work."

The *USS Henderson* was finally commissioned on 16 June 1917 as the first Marine transport and in the same month, the Navy Department directed the Marine Corps to form an advance base force of 360 officers and 7598 enlisted men which was to include in its task organization aviation elements; armored car units; signal units; engineer units; four batteries of heavy defense artillery; searchlight and mine elements; mobile artillery consisting of a light battalion, a battery of heavy artillery, and two antiaircraft batteries and a brigade of infantry. The 8th and 9th Marines were organized at Quantico as the infantry brigade. There was no threat during the first world war by the German fleet against bases in the Western Hemisphere, and this organization was therefore never employed or even maneuvered as a unit. The advanced base force

was greatly reduced in strength in 1919. How ever, the materiel and a skeleton organization were maintained at Philadelphia and Quantico.

The strategic mission of the United States Navy in the first world war did not require land ing operations. However, the development of naval aviation before and during that conflict and landing operations conducted by the British and Germans had an important influence on th later development of amphibious tactics.

The employment of sea-borne forces in the period before the Spanish-American War se important precedents for the later developmen of amphibious tactics by the Navy. But modern technical advances in ordnance and other ma teriel required modern techniques which were not developed until after the first World War. Commodore Perry recognized the need for a special landing force organization during th Spanish-American war. However, the use of improvised landing forces continued throughout the nineteenth century. The development of special landing craft and the development of a technique for ship-to-shore movement through surf was demonstrated in both the Mexican and Civil Wars. Steam gave additional mobility to sea-borne troops, but no transports were specifically designed for assault landing operations. Naval guns were used for shore bombardment with increasing effect with the advances in ordnance before and during the Civil War. A precedent of close cooperation with the Army was established during the war between the States. However, the missions of the Army and Navy in joint operations were still quite distinct. There was cooperation but there was not coordination in amphibious tactics.

The special nature of landing operations was not recognized until the Spanish-American War. It was not until the Twentieth Century that amphibious warfare was considered to required a special field of tactics and not until that time was a specially trained organization established on a permanent basis. The war with Spain taught the need for special force as an auxiliary arm of the Fleet to seize and hold advance bases. This missions was assigned to the United States Marine Corps and became its most important one. Although the emphasis was on base defenses rather than on assault landings, landing force organization, early equipment and tactics came into existence.

The Navy did not participate in or contemplate opposed landings on a large scale prior to the world war. Naval bombardment was used to destroy or reduce strongly defended shore positions. Mobility was employed to gain surprise in landing forces on unoccupied or lightly defended beaches in order to conduct a land campaign ashore with naval cooperation and support. Amphibious tactics were considered to be almost exclusively the problem of the landing force. No purely naval organization or tactics were devised for landing operations, nor was there any emphasis on a coordinated ship-to-shore assault through surf against a defended beach.

To be Continued

"Huff-Duff"

THE WARTIME secret of "Huff-Duff," an electronic long-distance detection device which played a major part in winning the Battle of the Atlantic, can now be revealed. Technically called high-frequency direction finder (the initials HF-DF rapidly became "Huff-Duff" in service slang), the electrical "finger" can spot a ship or plane halfway around the world. It was used as a team-mate of radar and sound devices which spot objectives at a much shorter distance ony.

The device on board ships, planes, and in a network of shore stations succeeded in breaking up U-boat wolf packs before they could assemble.

What the device does is pick up any voice or code radio signal transmitted on the international shortwave communications channels and, within a split second, visually shows the direction of the signal's source. When two or more "Huff-Duff" units ashore or afloat get such bearings, it is a simple mathematical exercise for a control center to determine where the lines of direction meet on the earth's surface. This fix is accurate within a few miles when attained at long distance and can be refined by getting more or closer bearings. Radio direction finders were in use before the war, but they were slow and subject to a multitude of errors.

"Huff-Duff" overcame all the problems of correction and provided a device which automatically scanned the entire circle twenty times a second. This speed completely crossed up the strategy of the German high command which believed the allies only had old-fashioned types of manually turned detectors which could not detect their "squirt" transmissions. ARMY ORDNANCE.

military digest

A monthly digest of important articles from leading military periodicals

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A Swing Around Our Pacific "Empire"

By Robert Trumball

I HAVE JUST returned from a two-month tour of "the new American island empire" in the Southwest Pacific. This empire stretches from the Gilbert Islands westward almost 2,000 miles to Palau; and from the Admiralties in the south it extends north about 1,700 miles to the Bonin Islands. With two or three exceptions, the political title to the islands is still in doubt, but, temporarily, at least, they are an American colonial empire.

Some of these islands were scenes of violent combat; others were great staging areas and fleet anchorages; still others, until recently, were mysterious places, seen by few white men after the Japanese pushed the Germans out in 1914. Now the great bases are all but deserted and the jungle is creeping over the empty quonsets.

The island empire is the largest "local" naval command. In naval parlance it is "Commarianas", which includes not only the Marianas but the Bonin, Volcano, Marshall, Caroline and Palau Islands; Manus in the Admiralties and Tarawa and Makin in the Gilberts. The title of Commarianas is currently held by RearAdm Charles A. Pownall, under whose command the United States Military Government Section plays the role of civil as well as military administrators (except in the Manus mandate and the British colony in the Gilberts).

NEW YORK TIMES MAGAZINE, 19 May '46

GUAM

Headquarters of the Commarianas is at Guam, the only American-controlled island whose ultimate status is not in doubt. Guam is so important as a transportation hub of the whole archipelago that I had to return there several times to make a fresh start. Garrisoned by marines, it is somewhat regulation ridden and run like a taut ship.

Here on Guam are still a few die-hard Japanese who come out of the jungle and down from the green hills to steal food and water. In fact, it is easier for them to take American supplies now that the population, once numbering 200,000, has dwindled to 50,000. Guam, however, is no longer security-conscious. Calling at the home of the island commander, I found no one there, not even a sentry at the gate or a mess boy in the kitchen. I could have stolen everything the general had and rifled the house of his Chief of Staff next door. When I went to meet Admiral Pownall at a dinner in the house once occupied by Admirals Nimitz, Halsey and Spruance, the lone marine guard waved me through without question.

On Agat beachhead is the Navy-Marine graveyard, with a tiny cemetery in one corner set aside for war dogs. It contains twenty-one graves, each with a white headstone painted with the black silhouette of a Doberman's head

and the dog's name (there were three "Dukes") and its rate (all were private first class).

Orote airfield, where the hardest fighting took place, is the graveyard of Navy fighter planes the remains of the "plane bank" for carrier task forces now dispersed. Hellcats sit there in rows, empty and rusting. Navy officers say there is nothing to be done with them. They are already obsolete as combat planes and cannot be converted to any other use. There is no one to fly them, anyway, and their value as scrap would not even cover the cost of shipping. Except for a few usable parts that will be salvaged, these planes will eventually be dumped into the sea.

SAIPAN-TINIAN

The great B-29 fields on Saipan, from which heavy blows against Japan were delivered, are deserted now except for hundreds of planes, empty tents and quonset huts whose occupants have long since gone home. A lone itinerant carrier lay quietly in the harbor which held 450 ships when plans for the invasion of Japan were building up last summer.

Five miles across the channel on Tinian is a small garrison and a few B29s still used for training. Although the fact never became generally known, it was Tinian, not Saipan, which was the main B-29 base for the strikes against the Japanese homeland. Now the busiest people on Tinian are the few Americans who run the agricultural projects for the natives.

TRUK

Truk, a fallen bastion, with 89 islands fortified down to almost the last sandspit, and its now-bombed-out airfields on Param, Eten and Moen Islands, was the headquarters of the Japanese Fourth Fleet and the 31st Army. The United States Navy's active plans for Truk envisage nothing more important than a fleet recreation center. The nights are pleasant and the days are not as hot as one would expect in a latitude of 7 degrees North, for Truk is washed by cooling winds.

Japanese "disarmed military personnel" who stayed on to clean the place up for the Americans still outnumber the 2,000 marines and sailors of the Truk garrison, with headquarters on Moen Island. Morale is not too good among the American service men, many of whom chafe at being kept in the service as "essential."

Except for the tents and quonsets, the houses are the Japanese thatched-roof type. So many foreign cultures have been imposed on the natives that they scarcely have any left of their own. An elderly dignified brown man named Artie Moses, who, as a deckhand, once spent three months in San Francisco, is recognized by the Naval Military Government section as the paramount chief of Truk's 9,000 natives.

PONAPE

The LST which brought me to Ponape was the second ship that called with supplies since our occupation. Ponape is mountainous, volcanic and beautiful, and the most isolated of our new bases, served by a weekly mail plane from Kwajalein. The Navy Military Government Section maintains a unit of forty officers and men and a Military Government officer makes monthly in pection trips to Ponape.

But the native chiefs, called "Nanmarki", the native police and village magistrate enforce the law, which is more of a problem among the restless Ponapeans than elsewhere. A local Spanish priest, Father Fernandez, and the plantation-owning Belgian brothers, Carlos and Leo Etschiet, would like to have more to say about the way things are run. In fact, the people of Ponape are quite independent and they don't hestitate to point out where they consider that Japanese methods of handling native affairs were more efficient than ours.

YAP

While its only real importance was as a cable station (it can be repaired), Yap is the most interesting of all the islands in Micronesia Those men who were loaded aboard transports for the invasion of Yap in September 1944, can be thankful that the operation was called off. It is not really an island, but a group of four larger land masses plus a number of smaller green dots. All four of the larger islands are connected by bridges and causeways which the Germans built with native labor, and they were well fortified.

This is only one of the engineering feats of the Germans who occupied Yap. They also constructed the winding Tagarren canal and splendid roads which still run through densely jungled hills. Footpaths are paved with flat, irregular stones and meandering mountain streams are diked up with riprap to control floods. The Germans are regarded by the natives as the best colonizers. The United States comes second, Japan third and Spain last.

The American camp is around an ancient Spanish citadel which was the center of an attractive little town until Marine bombers from Ulithi wiped it from the face of the earth. Enlisted men are kept busy from morning to night trying to build a base here, with practically no tools. I found that when men are kept busy, as they are here, their morale is far higher than in the great service centers such as Manila, Guam, and Honolulu, where thousands of men have nothing to do but gripe.

At the moment the Navy's Military Government section recognizes a tall, 40-year-old buck named Ruipong as "king." When we made a canoe trip around the islands, with Ruipong as the guide, his main service was to jump out and push when we were grounded in the shallows. At the time of my visit the Navy was beginning

to doubt Ruipong's standing among the natives. However, he has a noble bearing that befits his position, and I have seen subordinate chiefs pay homage to him in the form of Yap's ancient shell money, polished slabs of mother of pearl.

ULITHI

At Ulithi I transferred from a destroyer escort to the only landing barge left in the great blue lagoon where 400 boats once formed the largest water-taxi service in the world. Now the property of natives, the barge is, except for outrigger canoes, the only small boat in Ulithi. And when Americans in Ulithi need a boat, they have to borrow this one from the natives, who keep a 24-hour watch on board.

Mogmog, the recreation island, was once a fabulous place. Officers long at sea and tired from the strain of kamikaze attacks, relaxed here so enthusiastically that Adm Halsey once issued a warning. Today the broad coral strand where Navy men broiled in the sun with ice-cold beers and double bourbons, clutched in sweating fists is once again the afternoon playground of native children. The natives—who in wartime were confined to the island of Fassari—have again spread throughout the atoll. They have ripped up the floors of the quonset huts so that they can do their cooking indoors.

It is a little hard to believe that by actual count, 2,500,000 American service men stepped on to the low green atoll islands of Ulithi in the 11 months that this was the principal fleet anchorage in the western Pacific. Here was the staging point for naval support of the Philippines campaign and the overpowering seaborne air raids on the Japanese home islands. Today the United States armed forces are composed of 19 Coast Guardsmen who man the Loran station, eight men of the Navy aerographical unit and one pharmacist mate, who is the nearest thing to a doctor for the 27 service men and 600 natives. Now the top-ranking officer, and commander, of this once great base is a warrant officer, R. Howard Willard of Monmouth, Ill., successor to a fleet admiral.

PALAU

It was not really Truk but Palau which was the powerhouse of the Japanese force in the central Pacific. These islands were the main base of the Japanese fleet for the central and southern area and the staging center for Japanese operations in New Guinea. All of the fleets in the world could anchor in Palau's blue lagoon and be sheltered by the high, abruptly rising islands.

It took a fierce battle to capture Peleliu and put Palau out of the war. Today Peleliu is again a beautiful pacific island, with its "mile-a-minute vines" fast covering the desolate battlefields with broad leaves of kelly green.

MANUS

The expedition against the Philippines was staged here. This is an immense protected anchorage, a peculiarly natural volcanic formation much like Truk, and it is outside the typhoon belt. It seems to be agreed that we will keep this base as our southwest defense anchor, although nothing official has come out. Before I saw Manus, British naval officers with the British Pacific Fleet told me with awe in their voices that the American establishment at Manus was "bigger than Scapa Flow." When I finally got to Manus, less than a month ago, there were 3,000 men left, commanded by Comdr Charles F. Martin.

Answers to Jap quiz on page 20

1. False	11. False
2. True	12. False
3. True	13. False
4. True	14. False
5. True	15. False
6. True	16. True
7. True	17. False
8. True	18. True
9. True	19. True
10. False	20. False

MARSHALLS

Now, except for Kwajalein, which is the headquarters for "Operation Crossroads," the Marshalls are in caretaker status, with a few hundred low-point men on the flat, hot, dusty atolls. Kwajalein is the capital of 32 atolls and all activity is centered here and at Ebeye. To the north are Roi and Namur, which the Fourth Marine Division captured in 26 hours. Like the airfield at Emirau, Roi and Namur are "closed."

TARAWA

Bare, windswept Betio Island is an American shrine. Soft tradewinds sigh through shattered palm trees like a dirge. Nearly a thousand men of the Second Marine Division lie here in the American cemetery. Tarawa today is part of the British Empire, and only 45 American Army officers and men remain. For this place, whose name should live forever, is today just another all but forgotten byway in the Great Pacific. ★

The Decisive Battle of the Pacific War

By Walmer Elton Strope

THE PACIFIC phase of World War II was predominantly a naval war. In the air, on and under the sea, its engagements were many. Some of these were great battles, involving many ships and great numbers of combatants. Coral Sea, Midway, Leyte Gulf, and Okinawa—each of these was of great importance. Yet it is quite probable that historians of the future, observing the Pacific War with greater perspective and less bias than that of which we are capable, will consider none of these battles the *decisive* battle of the conflict. In fact, it is quite likely that history will record not one, but two engagements as the decisive battle of the Pacific War. These two encounters, occurring some nineteen days apart, have been given the names: Battle of Santa Cruz (26 Oct 1942) and Battle of Guadalcanal (12-15 Nov 1942).

Santa Cruz and Guadalcanal clinched the American hold on the lower Solomon group. From that point on, ours was a steady and rapidly accelerating advance. One by one the chain of island strong-points threatening Australia were captured or neutralized. The enemy's central outposts were hammered flat. In 1944 Saipan, Guam, and the Philippines were stormed and taken. The avalanche roared on with ever increasing tempo until the battered enemy capitulated in August of 1945. During this time of American advance and Japanese retreat, several heavy engagements were fought at Sea. The Battle of the Eastern Philippines and the Battle for Leyte Gulf broke the back of Japanese naval power both on the sea and in the air. The actions off Okinawa were brilliant victories of naval power over the most fanatical of air attacks. But these victories were a result rather than a cause, a culmination of what had gone before. Santa Cruz and Guadalcanal lie at the turning point of the Pacific War.

The first act of the main Japanese attempt to regain Guadalcanal began on the night of October 23-24 with a land offensive calculated to recapture Henderson Field. Later information was to prove that Orange naval operations were closely geared to the progress of the fighting on Guadalcanal. The Japanese plans evidently called for the capture of Henderson Field *before* the arrival of the naval and transport forces. The heroic defense thrown up by the Guadalcanal marines forced repeated delays in the timetable and the Japanese were incapable of altering their plans.

The Battle of Guadalcanal marked the last Japanese attempt to regain the lower Solomons. For the next few months they confined their activities to occasional "Tokyo Express" supply expeditions and soon they withdrew altogether. The Japanese withdrawal from the lower Solomons was overshadowed, however, by a fact of even greater importance. The Japanese appeared to have abandoned the offensive and to have assumed the defensive.

The change was marked. In the phase before Guadalcanal, the enemy had appeared eager to risk his heavy "nonexpendable" units of naval power, his aircraft carriers and battleships, in every major engagement. This was true at Coral Sea, Midway, and in all the battles for control of the lower Solomons. After the Battle of Guadalcanal, however, Japanese heavy units disappeared from the seas. *A close study of communiques reveals that from November 15, 1942, until June 18, 1944, not a single Japanese capital ship was engaged by our forces.* During this time United States forces extended their control to the upper Solomons, New Guinea, and the Admiralty Islands; invaded the Gilbert and Marshall Islands; isolated and by-passed the naval base at Truk; and invaded Saipan. It was not until our movement into the Philippine Islands threatened the collapse of the entire Japanese Empire structure that Orange heavy units were forced out of hiding.

Having failed to obtain their objective at Santa Cruz by the use of air power, the Japanese were forced to rely on their only remaining weapon, sea power. In the Battle of Guadalcanal, the technical superiority typified by the *Washington* and *South Dakota* was again victorious. The well-balanced employment of carrier air strikes and surface fire power proved as decisive against sea power at Guadalcanal as it had against air power at Santa Cruz. Under the circumstances, the lesson was clear. *The Japanese realized that they were in a first-rate sea war and that they were fighting that war with third-rate equipment and third-rate ideas.* That was the decision of Santa Cruz and Guadalcanal.

Enough information has emerged since the end of hostilities to indicate that the Japanese knew why and when they were defeated. Adm Yonai, Navy Minister, admitted following the surrender, "Japan was strikingly inferior in the

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technical equipment of its forces." RearAdm Kanagawa, commanding officer at Rabaul, stated in an interview that he believed that Guadalcanal was the turning point of the Pacific War. As a layman, a Domei newspaperman, captured on Saipan, voiced the same opinion. Japan's third-rate navy never had a chance. Once its screen of air power was torn away, its pitiful nature was exposed to view. It was swept from the seas.

After the lessons of Santa Cruz and Guadalcanal, the Japanese did the logical thing. They withdrew their outclassed warships and went on the defensive. Their fleet went into hiding. Where? American naval men knew the answer. It lay in the navy yards and naval dry docks of the Empire, where workmen hurriedly installed more and newer automatic weapons, better fire-control systems and electronics devices. It was a vain attempt. The technological advancement of the Japanese surface fleet had been neglected too long. Japanese industry could not supply the know-how and Japanese scientists could not bridge the gap of years of disinterest in the problems of adequate air defense. What the U.S. Navy had developed through years of research and training could not be emulated in a matter of months, although considerable progress was made. Airmen returning from strikes during the Battle of Leyte Gulf remarked upon the improvement of Japanese antiaircraft defenses. But the American combination of fighters and ships' guns was immeasurably superior. It was so superior that a fleet "came to stay" off Okinawa despite the most fanatical air assaults ever seen.

Thus, the ultimate destruction of the Imperial Japanese Fleet was foreshadowed at Santa Cruz and Guadalcanal. These twin engagements were the handwriting on the wall. When the victorious American Fleet steamed into Tokyo Bay, it was met by a single Japanese destroyer—the only operable unit of the once mighty Nipponese fleet. It is well to remember, in this respect, that Japan surrendered before her home islands were invaded. Her conquests on the Asiatic mainland were still extensive and her huge, well trained land forces there were largely intact. Her industries, despite heavy bombings, were still operable. Her naval power, however, had been destroyed. As a result of her loss of control of the sea, Japan was cut off from the sources of her most vital materials. Her remaining air power did not have the fuel to launch itself on its desperate *Kamikaze* missions. Without gasoline, rubber, aluminum, and other equally important materials, Japan's war effort ground to a stop. ★

Long Term Storage

By Col Fred I. Gilbert, Ord

UPON THE TERMINATION of the war, the Ordnance Department was faced with the gigantic task of preserving and storing quantities of war reserve fighting materiel. A new departure from any method previously used to store equipment has been developed, which might be described as the "canning" of Ordnance equipment.

"Canning" actually means placing various types of fighting equipment in sealed metal containers in order to eliminate the destructive forces of nature in the form of rust, corrosion, mildew, etc., which render our fighting equipment useless when permitted to gain any degree of headway. It is felt that the majority of this ultra-modern fighting equipment should be placed in permanent storage where it can be kept with little or no attention until it might be needed, or until it becomes obsolete.

A plastic form of protection of the sealed type has been developed, known as strippable film, to be used for storage of equipment during comparatively short periods, such as three to five years.

In order for rust or corrosion to occur, it is necessary that both moisture and oxygen be present. However, if the moisture content is very low (below 30 per cent relative humidity), no deterioration of metals is to be expected.

The cans are actually metal packages of the following types:

(a) Hermetically sealed steel containers filled with either dry air or nitrogen; or in some cases a desicant such as silica gel, is placed in the container to absorb the moisture.

(b) Aluminum containers connected to the atmosphere through a breather which balances the pressure and dehumidifies all air entering the container.

c) Steel igloos fabricated from sheet steel originally intended for bomb bodies.

(d) Government owned gasoline storage tanks up to and including tanks of 55 feet in diameter are also contemplated for storing artillery and tank and automotive equipment.

Both the igloo and gasoline storage types are either statically or dynamically dehumidified.

CAVALRY JOURNAL, Jan-Feb '46

In some cases the use of a vapor phase inhibitor is being tried.

The proposed container for packaging .30 caliber M1 rifles and M2 carbines for long-term storage is a welded steel drum. Ten carbines are disposed symetrically in a welded carrier assembly which is fabricated from steel stampings and pipes or tubes. The carrier assembly is provided with a handle to facilitate removal from the container after it is opened. Glass fiber material is used in several locations in the assembly for cushioning. The carbines are secured in place in the carrier assembly by stamped end pieces and steel bands.

Provision is made in the carrier for 10 slings and for sufficient desicant material to maintain a relative humidity not in excess of 30 per cent over the range of 56 degrees F to 160 degrees F. The atmosphere of the container will be air. The carbines will be coated with a preservative oil, conforming to U.S.A. Spec. 2-122.

It is planned that the final assembly of carbines in the container will be carried on in a room with a temperature of 70 degrees F and a relative humidity of 40 per cent. The cover of the container will be seam welded after the carbines are in place to form a hermetical seal. The slings will be treated before being enclosed in the container. Also, the carbines and magazines will be dried in an oven before being dipped in warm oil.

The gross weight of the container is approximately 106 pounds. This compares favorably with a comparable weight of 98 pounds for the regular export pack heretofore used for 10 carbines. It is estimated that the cost of packaging the carbines in the proposed container will be approximately $2.00 per carbine. The comparable cost of packaging in a conventional export pack would be approximately $1.00 per carbine.

The container proposed for long-term storage of the .50 caliber M2 Browning aircraft basic machine gun, is a welded aluminum cylinder.

The superior protection afforded by the hermetically sealed container far outweighs the additional expense. The metal type of container may be stored in the open indefinitely with only nominal surveillance, whereas the conventional wooden boxes would deteriorate under average conditions in this country. In the tropics or in sub-tropics, the organic material in the conventional export boxes would be subject to attack by insects and mold; whereas the metal container with a suitable preservative would furnish adequate protection over a period of years with normal surveillance.

Strategically a number of important observations are made possible of attainment by the adoption of metal containers. First and foremost, the adoption of the container will make it possible to remove reserves of machine guns, etc., to any point in the world to storage out-of-doors and so stored will be in a completed assembly condition ready for action immediately upon removal from the container.

Needless to say, it will be possible to redistribute the reserves of machine guns, pistols and revolvers, so protected, at any time, in any manner designated by stategic and tactical considerations. Assembled reserve stores may be removed to a different theater or they may be widely distributed to any theater to minimize the possibility of destruction by surprise attack.

Transport vehicles which follow commercial practice will not be canned. Weapons in most cases will be canned.

Canning is actually the cheapest way of preserving Ordnance equipment for long periods, such as 25 to 50 years. Figures now available indicate that the cost of canning to preserve the materiel for this long period will be up to 5 per cent of the value of the materiel. ★

UNLIKE most smokeless powders which require vast quantities of alcohol in their production, a recently developed smokeless ball powder uses no alcohol and is made by a new underwater process. Speed of producing smokeless ball powder is as much as ten times faster than the production of smokeless powder by usual methods.

The new method keeps nitrocellulose immersed in water where it is liquefied by ethyl acetate. The liquefied nitrocellulose then rises to the surface of the water, where it is broken into tiny globules by stirring. The size of the globules or balls ranging from six- to thirty-thousandths of an inch in diameter is controlled by the speed of stirring.—ARMY ORDNANCE.

The Proximity Fuze

By Col C. H. M. Roberts, Ord

THE PROXIMITY FUZE is one of the most outstanding and revolutionary scientific and technical developments of World War II and second only to the atomic bomb as one of its most important secret weapons. It has been stated to be the most important advance in Ordnance since the invention of high explosives. It is still a secret weapon because, despite the fact that it has been employed in combat since January 1943 and has been used with devastating effect in every theater of war, no intact fuze was ever captured and, as far as is known, the secrets of its design and construction have never been learned by our enemies.

The purpose of the proximity fuze is to cause the detonation in air of high explosive ammunition—field artillery and antiaircraft shells, bombs, rockets, and mortar shells—at the optimum point on the missile's trajectory so as to cause maximum fragment damage to the target and to permit delivering accurately and automatically controlled airburst detonations at ranges and under conditions previously impossible to achieve. Thus, there was produced a fuze which functions where it will do the most execution, a fuze that "thinks" for itself, that is aware of its environment and responsive to it, rather than one which blindly obeys a "time command" given prior to its departure. By use of these VT fuzes during the war, it was found that they produced lethal effects against suitable and air targets that were from five to twenty times as effective as had previously been possible with conventionally fuzed ammunition.

As used in field artillery weapons, our ranking artillery officers have rightly termed the proximity fuze "the answer to the field artilleryman's dream", because of the speed and accuracy with which air burst "time fire" can be laid on any target up to the maximum range of the weapon without registration or accurate observation, by day or night and independent of weather conditions. At one of the earliest demonstrations of the proximity fuze against ground targets, the late Gen Leslie McNair, then Commanding General, Army Ground Forces, watched silently while a target area simulating men in foxholes and in the open was systematically searched and blasted with proximity fuzed shells. After observing the accuracy of the airbursts and inspecting the damage that resulted, his single, all-embracing comment and accolade was the single word "Incredible." Much later, when the proximity fuze had been fully proved in combat, that dashing, almost legendary, armored force commander, the late Gen Patton wrote to the Chief of Ordnance that "the shell with the funny fuze is devastating" and related how a concentration of 105mm proximity fuzed shells placed on a German battalion crossing the Sauer River in rubber boats had all but wiped them out and left 702 counted dead.

The highest officers of the Navy, which first employed the proximity fuze in combat, attest to its effectiveness in overcoming the threat of carrier and land-based Japanese airpower, and credit the fuze with assisting in speeding up the time table of the Pacific war and in saving thousands of lives and many ships. The early development of the proximity fuze, in fact, was predicated upon its necessity for use in ship-borne antiaircraft weapons, to increase their accuracy and rate of fire, and thereby to nullify the deadly effectiveness of air attack on naval vessels.

It was fortunate that the conditions of naval use permitted unrestricted employment of the antiaircraft proximity fuze from the outset, without jeopardizing or compromising its secrets, because at sea, capture or recovery of fuzes was impossible. Therefore, the Navy AA fuze was developed and produced with first priority and was used in ever increasing numbers from 5 January 1943, when the cruiser *Helena* first successfully employed it in combat to destroy an attacking Japanese dive bomber, until the close of the war.

In the autumn of 1944, after the invasion of the continent had progressed to a point where the early collapse of Germany could be foreseen, the Combined Chiefs of Staff decided to release the proximity fuze for unrestricted use in all theaters. It was planned to introduce the fuze into combat on all fronts in the European Theaters on Christmas Day 1944, but Von Rundstedt's drive in the Ardennes' forest caused these plans to be accelerated and the fuze was committed with deadly effect on 15 December. The conditions for use of proximity fuzes were as favorable for the Allies, as was the foul weather which aided the Germans by concealing their activities from Allied air power. German artillery, tanks, transport, and men swarmed on the roads and in the open across the countryside, and the execution resulting from use of proximity fuzes was little short of mass slaughter. Highways were interdicted by day and night, to the extreme range of our heavy artillery, and

WAR DEPARTMENT RELEASE

German transport was paralyzed. Troops on the march, in bivouac, and in the attack were subjected to barrages of proximity fuzed shells, and the reiterated testimony of prisoners of war attested to the deadly effectiveness of the airburst shells whose fragments penetrated log-covered foxholes, shattered the trees of the forest and found their victims despite the protection of holes, covered positions and defilade. Under this attack, the last despairing effort of the Germans collapsed and their fate was certain.

In ground operations in the Pacific, the proximity fuze was used in antiaircraft operations from the late summer of 1944 and by field artillery in the Philippines and Ryukus campaigns.

In the air, the proximity fuze made its debut in the pre-D-day saturation bombing of Iwo Jima early February 1945, when the Seventh Air Force dropped several thousand proximity fuzed fragmentation and demolition bombs on the airfields and antiaircraft defenses of the island, resulting in marked reduction in the volume and accuracy of the defensive fire. This first use in the air was quickly followed by employment in both Army and Navy air attacks on targets nearer Japan, and on the home islands themselves.

In the highest sense of the term, the proximity fuze was a truly cooperative, inter-service, allied achievement. It was independently conceived by civilian scientists in this country and in England in mid-1940, with knowledge being pooled soon thereafter, and was fully supported by the joint efforts of the military and naval services of both countries. Not once during the war did any break in the security occur and neither the Germans or Japanese ever had the slightest hint as to the existence of these fuzes. In fact, in intelligence interrogations in Germany after the war, high German officials freely admitted that their agents had failed to obtain information on these fuzes and they were completed unprepared to combat them. As far as has been learned, the Japanese were still unaware of their nature on VJ-Day. It was not until the Combined Chiefs of Staff permitted partial relaxation of security on proximity fuzes that the world—and a considerable segment of the allied forces—were permitted to know of their existence.

In Japan, several types of proximity fuzes were under development, of which one—a photoelectric type—had been put into restricted operational use, having been employed against our troops on Saipan and Okinawa. This is the only known use by the enemy of proximity fuzes during the war.

While proximity fuzes of several types were under development in this country, it was apparent early in the work that the radio type offered the most promise of meeting all requirements for use in all classes of weapons. The major effort was therefore concentrated on this type, although photoelectric types were first produced in quantity and were held in reserve for emergency use, if the need should arise before the radio types were in full production.

The VT or proximity fuze is a generic term that, as will be appreciated, is applied to a family of fuzes, for use in a variety of weapons and meeting a variety of technical and operational requirements. The one thing which all types used in service had in common was that they operate by broadcasting a continuous radio wave of suitable frequency, this being generated by an oscillator in the fuze body. The broadcast wave, upon striking a suitable reflector, which may be an airplane, a ship, the ground, or other target, is reflected back to the fuze, where it is received by the sending antenna and oscillator. Due to the relative velocity of approach of the fuze and its target, there is a difference in frequency between the transmitted and reflected waves, hence the superposition of these waves in the oscillator circuit gives rise to a beat, or Doeppler, effect. Its frequency is a function of the relative velocity of missile and target, and its amplitude is a function of the distance between shell and target, the reflective power of the target and a "coupling factor" related to the sensitivity pattern of the antenna and the angle of approach to the target. By special circuit design, the Doeppler frequency is segregated and passed through an amplifier circuit of special characteristics, so designed as to produce a signal of suitable magnitude when the fuze reaches the proper location, relative to the target, to give maximum effectiveness. At this instant, the amplifier signal triggers a thyratron in a firing circuit, thereby discharging a powerful storage condenser, firing an electric detonator, and thereby detonating the missile. In addition to the radio circuit described above, there is of course a suitable source of power, which may be a special storage battery or wind driven generator, and a number of sequential and interlocking safety devices, whose purpose is to guarantee absolute safety of the fuze during handling, shipping, storage, loading, firing, and, after firing, until the missile is sufficiently far from the point of discharge so as to guarantee safety of the gunner or bombardier. By test and as the result of global combat use, it is a matter of record that VT fuzes are by far the safest fuzes yet produced, and this safety has not been achieved at the expense of proper functional operability.

Based upon the above characteristics, which were common to all types, two distinct kinds of fuzes were developed. Those to be employed in rotated weapons, characterized by being fired chiefly in high velocity weapons and from the ground, and subjected to high setback and centrifugal forces, were powered by special "reserve"

batteries and were designed with great rigidity and ruggedness of parts, so that they would withstand the stresses to which they were subjected and still remain operable. The battery electrolyte was contained in a glass vial, which ruptured under the setback force of firing, allowing the electrolyte to be distributed to the battery plates by centrifugal force. The various safety and other control devices, also, were activated and controlled by the same forces.

VT fuzes designed for use in non-rotated ammunition, which might be fired from the ground in low velocity weapons or fired or dropped from planes, and which were subjected to low or negligible setback forces, were powered by specially designed powerful high speed miniature generators, driven either by wind vanes or air turbines. The source of power was, of course, the air pressure generated by the motion of the missile. The fuzes were also designed for rigidity and ruggedness of parts, but requirements were considerably different than for shell fuzes. The development of suitable miniature generators, which operate at speeds up to or in excess of 100,000 rpm, which must be free from vibration, and which had to have specially designed electrical characteristics, involved major design problems which surpassed those of the radio circuit itself.

For both kinds of fuzes, which had to be designed in sizes suitable for use in projectiles from the 81mm mortar and 3″ artillery shells, up to the largest artillery shells and bombs, it was necessary to design and develop subsinature components of all types, and to produce these in astronomical quantities, far beyond any previous requirements of the electronic industry, to meet more exacting specifications and tolerances than any previously required. Vacuum tubes, for example, though smaller than a peanut, had to be designed and constructed so as to be free from microphonics and to withstand shocks, accelerations, and centrifugal forces up to or exceeding 20,000 times the force of gravity.

Now that the war is over, the lessons that have been learned are being digested and put into operation for the creation and development of improved and completely new types of VT fuzes, whose functional characteristics, operability and utility already so far surpass those employed during the war as to make them virtually obsolete. ★

Japanese Free Balloons

A TOTAL of 194 paper balloons and three rubberized-silk balloons, all of Japanese origin, were found in the United States, Canada, Alaska, Mexico, and the Pacific Ocean area during the period from November 1944, to February 1946. In addition there were 89 recoveries of small fragments of paper or other balloon parts too incomplete to be classed as a balloon. Also, 32 bombs (or bomb fragments) which had been dropped by balloons on the North American continent were found, and 407 reports of the sighting of one or more balloons in the air were received.

No evidence was obtained from the recovered paper balloons of any purpose other than the transportation of bombs and incendiaries although the many unusual radio signals heard from the Pacific area indicated that ranging might be the primary purpose. Interrogation of high-ranking Japanese Army officers after the surrender indicated that the balloons were released solely in retaliation for the bombing attacks on Japan by U. S. aircraft and the project was initiated as a result of the Doolittle attack on 18 April 1942. No loads other than incendiaries and bombs were ever used or proposed and according to these Japanese officers there was no intention to use the balloons to transport biological warfare weapons.

When the first bombing attack on Japan occurred in 1942, the effect on Japanese morale was such that all-out efforts were made to devise retaliatory measures. The Japanese General Staff considered the use of airplanes, submarines, and free balloons, and as a result, development of a paper bombing-balloon was initiated. It was first intended to develop a balloon, capable of traveling a distance of about 1,800 miles, to be released by submarines or warships off the west coast of the United States. To attain this objective, the weather balloon was increased in diameter from 13 feet to about 20 feet, and then to 26 feet. By the summer of 1943 it was believed that a balloon capable of traversing the required distance had been developed.

By this time, however, it was found that the Japanese Navy was depleted to the point where the ships and submarines necessary to carry on such an attack were no longer available and therefore further investigations were undertaken in an effort to evolve a balloon capable of traversing the wide expanse of ocean between Japan and North America. Much experimental work

COAST ARTILLERY JOURNAL, March-April '46

was necessary but in December 1943 and the first quarter of 1944 approximately 200 test balloons, loaded mainly with sand, were built and released.

Although the Japanese admit that they knew little or nothing concerning the course and distance traversed by the test balloons, nevertheless they then began large-scale mass production of paper balloons having an inflated diameter of approximately 33 feet. On the basis of a few reports of fires and explosions occurring in "unexpected areas" recorded by Japanese monitors from U. S. broadcasts, they believed that some success had been achieved.

The production goal had been set at a total of 20,000 balloons but only 9,000 were finished, all of which were released. The first specimens of the mass production were available in July 1944, but none was released until about 3 November 1944. The balloons were handmade and were constructed in a number of small factories; a shipping tag found with the balloon recovered on 13 March 1945, in the state of Washington, indicated that it was made by the Sagami Arsenal, located about 15 miles northwest of Yokahama.

The paper balloons cost originally about 10,000 yen, roughly 2,300 dollars, at the prewar rate of exchange, but this cost was reduced somewhat as production increased.

It is estimated that 10 per cent of the balloons released reached the United States, and that 20 to 30 per cent of failures were due to shortcomings of the launching cress. Ten per cent of the total launchings of 9,000 is considerably greater than the total of 283 balloons and fragments recovered but since some balloons were equipped for self-destruction, and because of the great area of the target, it is possible that close to 900 balloons actually did arrive over North America.

When release of large quantities of paper balloons began, about 10 per cent of those released were equipped with radiosonde apparatus which furnished information on the altitude of the balloon. Radio direction-finding stations on the island of Honshu obtained bearings on the radiosonde transmissions, which by triangulation indicated the location of the balloon. They were normally tracked up to a distance of approximately 1,200 miles, which distance would often be covered in eight to twelve hours, an average speed of 100 to 150 miles per hour. The wind velocity at an altitude of approximately 33,000 feet, which is believed to have been the average operating altitude of the paper balloons, varied cyclically from 100 to 150 miles per hour, with a period of about 8 days. The balloon "track" showed that normally in November the course was south of east, in December directly east, and in February to the north of east.

According to one Japanese source, the ballon load varied from a minimum of about 25 pounds to a maximum of about 65 pounds, with the average about 50 pounds.

The Japanese expected that information on damage caused by the balloons would be available from normal press channels and radio broadcasts. However, after the first mention of the original balloons found, the press and radio of the United States and Canada maintained a very complete voluntary censorship at the request of the Army and Navy through the Office of Censorship and thus dented the Japanese information as to the numbers of balloons arriving and the landing points.

The Japanese did not expect that the balloons would be an effective weapon, which estimate proved to be accurate. Casualties resulting from the balloon bombs were six people killed in Oregon as a result of the explosion of an antipersonnel bomb. These casualties were caused by a bomb that presumably had been on the ground for a month or more and were the tragic result of the handling of the bomb by inexperienced persons. Negligible damage was caused by the incendiaries; the only fires resulting being one or two small grass fires. ★

DANGER of atom bombardment of our great cities and industrial centers by long-range stratosphere rockets may be considerably lessened if Army Air Forces' efforts to "track" captured German V-2's by the use of "moon radar" and other devices are successful in experiments to be held this summer.

White Sands Proving Ground in New Mexico will provide a desert setting for tests in which the AAF will pit its "radar brains" against the V-2's. These rockets will be sent streaming ninety miles into the stratosphere by Army Ordnance. The AAF, in cooperation with the Signal Corps, will attempt to plot their course from the moment of discharge to the moment of impact.

Every known means of radar detection, including those devices used recently in reaching the moon, will be utilized by the AAF in an effort to "keep a finger" on these 3,000-mile-an-hour missiles as they arch across the sky. If this tracking is successful, according to AAF experts, it will then be possible to devise some means of exploding the V-2's harmlessly in midair before they can reach their targets—probably by interception with "counterattack" rockets. ARMY ORDNANCE.

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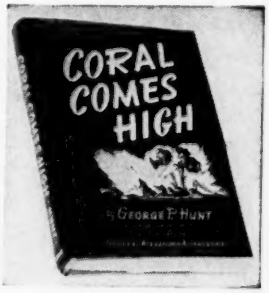

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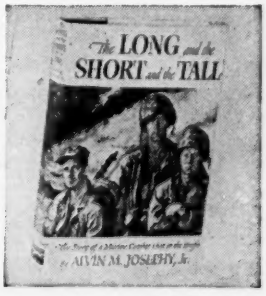

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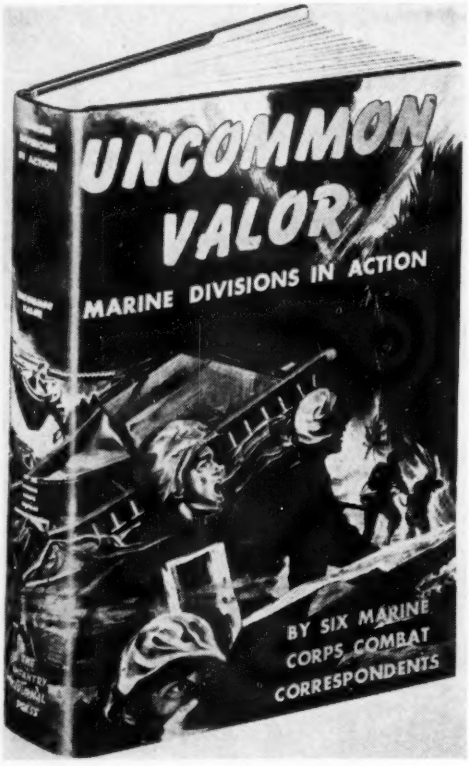

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Ode to an Annex

. . . by Edmund Zybricki, Corporal,

United States Marine Corps Reserve (Volunteer), second in command, Pyrotechnic Section of the Reef Transfer Detail, Beach Red 1, if practicable

I've assembled all the orders
And I've read them, one by one:
Third Mar Div and Third Phib Corps
And Fifty-Three Point One.

I'm free to say, on this late day,
That none escaped from me:
The Northern Group, the Southern Group
And Fifty-Three Point Three.

Orders, orders, seabags full,
With annexes galore—
I'll need ten men with barracks bags
To carry them ashore.

But we must have the written word
(And shame on those who laugh)
For who would land on Stevedore
Without a mimeograph?

The god of wars will not permit
The men of war to land
Upon a hostile shore with things
The Japs could understand.

Let's take, for instance, Annex King
Appendix Six, Page three
(As modified by Addendum Six
To Third Phib S O P).

In paragraph five of Annex King
It says that we must go
To reference (b) of Annex George,
Which is modified below.

But disregard the "Modified"
And insert the word "Delete"
Destroy by burning Annex King
The order's obsolete!

Those who prefer the Alternate Plan
May simply scratch a word:
Make "Preferred" the "Alternate" Plan
And "Alternate" plan "Preferred."

The things in Annex George do not
With Annex King agree.
It's too complex for the Japanese
And it's too complex for me.

So respectfully this plan I bring
To those who guide our course:
A plan without an annex
I submit without remorse.

We plan now that our pamphlet planes
Shall drop upon the foe
Surrender leaflets by the score
(A preface to the show).

But instead of dropping leaflets
Around Agana Town,
I propose we ask our pilots
To drop our orders down.

Our eagles high above will drop
Our files in gay profusion—
Down will go our orders
And up will come confusion.

And at D Minus One, for further fun,
We'll soar above the ranges—
First we'll hit 'em with Addenda,
Then let 'em have the Changes!

Insanity will reign supreme
We'll set Chamorros free—
Our annexes will burn that night
The torch of liberty.